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CLINICAL MEDICINE

LEADING ARTICLES

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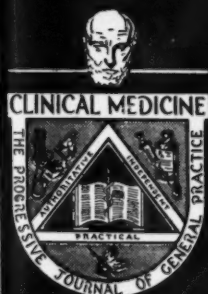
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VOLUME 53

JANUARY, 1946

NUMBER 1

Newer Aspects of Surgical Treatment of Cavities in Pulmonary Tuberculosis

By W. E. KUNSTLER, M.D., Montreal, Canada

THIS title may be somewhat misleading. Although successful lobectomy and pneumonectomy in pulmonary tuberculosis are no longer imaginary procedures, and although there is a definite trend among thoracic surgeons—and even chest physicians—to apply this method of treatment to early limited cavernous lesions, collapse therapy is still considered as treatment number one. The physiological mechanical conception, however, has changed in recent years, and this change will be outlined in the following paragraphs.

In a paper* published in 1944, the authors, accepting the teaching of Hall, Pearson, Coryllos, Eloesser, Monaldi and others, drew attention to the fact that a certain number of cavities do not reduce in size in spite of appropriate collapse methods. These cavities increase in size, slowly and concentrically, like an inflated balloon. They do not enlarge by confluence of honeycombing cavities or by the breaking-down of necrotic surrounding tissue. The parenchyma of the surrounding tissue often shows little involvement, and the picture appears to the radiologist as one of an air-filled cyst rather than an abscess.

*Kunstler, W. E., and Vineberg, A. M. S. G. & O., March 1944.

Pressure Cavities

The reason these cavities do not collapse under the usual standard procedures is due to the positive air pressure present inside the cavity. Air, which enters during inspiration through the expanded bronchus, is trapped within the cavity during the expiratory phase on account of physiological narrowing of the bronchus combined with pathological changes (masses of granulation tissue, kinking of the bronchus, a necrotic collapsed bronchial wall, tissue flaps, and so on) representing a check-valve mechanism and causing an obstruction of the bronchus during this phase (Fig. 1).

If, in these cases, a collapse procedure is capable of closing the draining bronchus permanently, i.e., so that air will not enter during the inspiration, the air will be absorbed and the cavity may disappear within a short time. If a draining bronchus closes spontaneously (this happens very rarely), the cavity may reduce in size and eventually heal without additional operative interference. If thoracoplasty does not abolish the check valve mechanism, the surrounding lung tissue will collapse but the cavity, however, will stand out very clearly (residual cavity).

In the majority of cases, there is a wide communication of the cavity with the bronchial tree during both respiratory phases causing atmospheric pressure in the cavity with a range of oscillation during inspiration and expiration directly to the size of the draining bronchus. These cavities lend themselves best to all types of collapse therapy (Fig. 2).

For pressure cavities, therefore, a logical procedure would be to apply any kind of treatment which allows (1) the free escape of the accumulated air, (2) a closure of the draining bronchus, and (3) a closure of the cavity by collapse methods.

Although drainage of a tuberculous cavity by transthoracic approach was attempted several centuries ago, the scientific understanding of the procedure came only within the last twenty years, and there are three men who should be credited with this: Eloesser, Coryllos and Monaldi. Drainage may be achieved by 1. open approach, as in a non-tuberculous lung abscess lobotomy, cavernostomy, or 2. by closed drainage, with or without suction.

Dangers connected with the later procedure are hemorrhage, empyema and air embolism. All three factors may be practically avoided when the technic described in the above-mentioned paper is carefully carried out. The special instruments permit of ascertaining the presence or absence of a free pleural space over the cavity, the presence or absence of blood-vessels of any important size, and coagulation of the cannula track with the diathermia current. Furthermore, tomograms allow the localization of the exact position and three-dimensional extension of the cavity.

Occlusion of the draining bronchus and closure of the cavity is achieved by suction (negative pressure) and is greatly enhanced by the succeeding thoracoplasty which may be less extensive as regards the number of removed ribs. Closure of the bronchus by astringents usually results in failure. Closure by coagulated plasma seems to be a promising procedure (Thomas, Gough and Still).

Diagnosis

In order to recognize a tension cavity it is necessary to needle all cavities over the size of 1.5 cm. previous to thoracoplasty. Needling is carried out with the same technique as is used for institution of drainage. An encountered free pleural

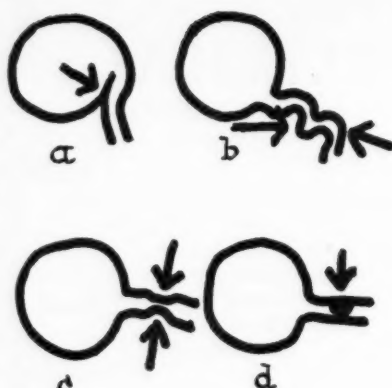


Fig. 1.

Various types of check valves: (a) Flap, (b) Kinking of bronchus, (c) Collapsed bronchus (d) Granulation tissue.

space over the cavity does not allow for puncture of the cavity and must first be obliterated by various methods (for instance, with whole blood or coagulated plasma). Manometer readings or, better still, kymographic registration during quiet and forced respiration, cough, introduction and withdrawal of air, give a fairly exact idea of the nature of the draining bronchus or bronchi, their patency and their size.

Results

While we obtained a closure of cavities by thoracoplasty and subsequent conversion of sputum in a series without previous needling in only 70% of cases, we were able to increase the results to 91% by treating positive pressure cavities with drainage before performing a thoracoplasty. The number of residual cavities, at one time estimated at about 15%, is now negligible, and tomograms usually show complete closure of the cavities. The persistence of positive sputum in the remaining 9% is due to disease of the contro-lateral side or progression of disease.

In a number of institutions which were very enthusiastic about cavity drainage when this method of treatment first became popular, the procedure is no longer employed. This change of attitude is mostly due to the following facts: (1) Drainage was considered as an independent method and not as additional procedure to thoracoplasty, (2) It was employed in giant cavities without regard to the intracavitary pressure, and

NON TENSION CAVITY

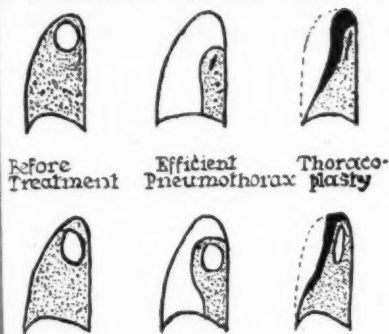


Fig. 2.
Effect of collapse procedures on tension and nontension cavities.

(3) The procedures to establish cavitory drainage were not adequate; they were followed by accidents such as hemorrhage, pneumothorax and empyema, embolism, and spread of infection. In order to secure full advantage in treat-

ing tension cavities, it is necessary to take all these facts in consideration.

It should be understood that the material we used presented throughout far advanced cases often with multiple cavities. It is, therefore, only possible to estimate the value of previous needling by comparing the figures of the first and second series of cases. Comparison of figures from different clinics is likely to be misleading. While one clinic reports cavity closure in 70% of cases, another shows figures of 80% and 85%. It is not so much the different technics of thoracoplasty or the experience of the surgeons responsible for the variation in figures but rather the condition of the patients submitted to operation (indication for operation, so-called poor-risk patients, and so on).

With, however, always the same material available, the same technic and the same indication in a single institution, with the same staff, a rise of 20% in the satisfactory end results is, *ceteris paribus*, due, we believe, to the estimation of the air pressure within the cavity and the procedures instituted in those cases which exhibit positive pressures.

5238 Queen Mary Road.

Fractures of the Elbow in Children*

By D. W. BOYER, M.D. and S. A. GALE, M.D., Pueblo, Colorado

EARLY reduction of supracondylar fractures should be carried out to prevent further swelling and bleeding. The manipulation should be performed under anesthesia. Remember that details may be missed in fluoroscopic examination. The arm should be kept in acute flexion, after reduction. If reduction is not good, repeat 1 week later. The circulation of the arm and hand must be watched.

A fracture of a condyle is often not shown on the roentgenogram as it is cartilaginous. See if there is displacement and rotation of the centers of ossification of the capitellum and compare with x-ray of the opposite elbow.

If the small fragments of bone are not

replaced in anatomical apposition, almost all the function of the elbow will be lost.

Fractures of Radial Head

Fractures of the head of the radius may not be recognized unless an oblique view is taken. Such a fracture often swells for 2 to 3 days; remember this fact, if a cast is used.

Dislocation

Reduce a dislocation first, then treat the fracture as if no dislocation had occurred.

Discussion: In children, don't operate for an elbow fracture, unless a fractured condyle needs to be wired in place. Insist on early, active motion; do not "pump handle" the arm. Take the arm out of the cast every two days for active movement; remove cast in 3 weeks.

*Brief notes taken on a paper delivered before the Colorado State Medical Society Meeting, Sept. 28, 1944, by Medical Staff, Clinical Medicine.

Differential Diagnosis of the Chief Vascular Diseases Causing Gangrene of the Extremities*

By GEORGE K. FENN, M.D., Chicago, Illinois
Associate Professor of Medicine, Northwestern University
School of Medicine

I SHALL omit from this discussion all consideration of traumatic gangrene. This excludes transection of blood vessels; the production of thrombi or emboli as the result of crushing injuries and fractured or dislocated bones.

All other gangrene of extremity is the result of emboli in a blood vessel, of thrombosis, of vessel spasm or a combination of these factors. Some disorders produce embolic gangrene under certain conditions and thrombotic gangrene under other conditions. Let us discuss the different disorders that are likely to produce gangrene of the extremity under headings that indicate the manner in which the gangrene is produced.

Embolic Gangrene

The sudden onset of embolic gangrene permits widespread damage to be done unless one realizes what has happened. Unless one is alert and recognizes the occurrence of an emboli considerable damage may be done before reparative steps are instituted.

Embolic gangrene is characterized by its sudden and painful onset. There is usually total obliteration of the circulation below the embolus and the extent of the gangrene will depend upon the amount and the capacity of the collateral circulation and many times upon the promptness with which surgical intervention takes place. Embolic gangrene occurs in the lower extremities in the vast majority of instances. It may affect the upper extremity. It is not the purpose of this paper to discuss the symptoms and signs of gangrene.

It is quite obvious that in order to have embolic gangrene one must have a source of emboli. One source of such emboli is in the fibrillating auricle. Auricular fibrillation produces a physical situation that predisposes to the clotting of blood within the auricles. Fortunately, such clots do not often become detached or are frequently so small that they produce no great disturbance. Occasionally,

however, a clot large enough to obstruct the popliteal or even the femoral artery will get into the circulation. It has been a puzzling matter to explain why an individual may go on fibrillating for years before he detaches an embolus. Acute infections, particularly acute upper respiratory infections, are thought to increase the predisposition to clotting. Dr. Peterson would say that barometric pressure and weather conditions must be taken into account. Recently Drs. Gilbert and deTakats have produced evidence to indicate that digitalis may increase the tendency to clotting. Other drugs, particularly those of the sulfa group, are under suspicion. Whatever the proper combination of causes may be, the fact remains that auricular fibrillation may at times be complicated by embolization of a vessel sufficiently large to produce extensive gangrene. A knowledge of this fact plus alacrity in diagnosis and early surgical intervention will often pay large dividends.

Acute coronary thrombosis may be complicated by embolization of arteries in the lower extremities. When the myocardial infarct resulting from a coronary artery occlusion lies fairly close to the mural endocardium an exudate appears on that portion of the endocardium overlying the infarct. A portion of this exudate may become detached and enter the circulation. The most likely time for such an occurrence is from the third to the sixth week following the coronary occlusion. It is surprising how often both legs are affected by the detachment of an embolus from the endocardium. The onset, of course, is abrupt and consists largely of pain in both legs, usually. It soon becomes evident, however, that one leg is seriously affected while the other one is little damaged. It is probable that the clot breaks at the bifurcation of the abdominal aorta and a portion goes into each leg. Fortunately one piece is usually small enough to get down to a point where an adequate collateral circulation may be quickly established.

Arteriosclerosis or atherosclerotic dis-

*Notes from a paper given before the Interstate Postgraduate Medical Assembly, Chicago, 1944.

ease of the sorta may produce embolic gangrene. Properly made x-ray films will frequently show calcified plaques of some size in the sorta. (Even if demonstrated, this is not proof that the embolus arose from the aorta—Ed.) Dislocation or detachment of one of these plaques will sometimes result in the embolization of an artery of the extremity. These plaques are usually small and are likely to enter a small branch of the sorta and produce entirely different symptoms. Embolization of a large vessel occurs often enough to justify mentioning here.

Aneurysm may be responsible for the creation of emboli. Aneurysms produce a physical situation that is quite similar to that existing in auricular fibrillation. Thrombi are formed in the same way and are dropped into the circulation under the same circumstances.

When one mentions aneurysms, one thinks, of course, of aneurysm of the aorta. It is true that the majority of aneurysms occur in this locality but it must be remembered that aneurysms occur in other vessels. I recall the case of a young chap who was sent to St. Luke's Hospital from downstate Illinois. He had a partial gangrene of the fingers of the right hand only. A careful search revealed the presence of a cervical rib and an aneurysm of the subclavian artery. It seemed likely that the aneurysm may have been produced by the stresses caused by the cervical rib. Careful x-ray studies convinced us that emboli were dropping from the aneurysmal wall and obstructing the circulation of the right hand. I mention this case to remind you that when gangrene occurs in an extremity it is not ordinarily from some obscure cause. It may be that one of the ordinary causes for gangrene exists in an unusual form.

Thrombosis

The gangrene that is the result of thrombosis of the circulation has a very different onset. Here the symptoms appear slowly and a reasonable time is given us to study the situation and make sure of our position. Also a chance is given to build up a collateral circulation, so unless the thrombotic process is rather wide spread, gangrene of large areas may easily be avoided.

Buerger's disease (thrombo-angiitis obliterans): A gangrenous toe may be the first sign of thrombo-angiitis. There are always signs and symptoms preceding the occurrence of gangrene but these symptoms may be neglected by the pa-

tient, the doctor or both. Thrombo-angiitis is a generalized disease of the blood vessels that selects the vessels of the legs chiefly. The beginning of the disease consists of a proliferation of the intimal coat of the arteries. This proliferation is an inflammatory reaction and soon the periarterial coats and the accompanying vein are involved. Thus arteritis, phlebitis and perhaps neuritis are all parts of the same process. As you may see, this process will result in the formation of ulcers, of gangrene of the toes and finally gangrene of the entire extremity. The early symptoms of thrombo-angiitis are coolness and pain. Almost invariably one leg is affected to a greater degree than the other.

The first complaint is that of coldness. The patient notes that he suffers from cold feet, a condition that he had not noted before. Then he finds that one foot is colder than the other. At the same time, or a little later, he begins to have pain on exercise (claudication). His cruising radius becomes more and more limited so about then he seeks the aid of a doctor. Even now when he comes in for examination he may have the beginning of gangrene. Some patients apparently do not bother much about cold feet and they seem to be less sensitive to pain than usual. Not infrequently one will find small ulcerations at the toe tips or between the toes at the first examination. You won't find them if you don't look for them, not while they are small. There is usually reduction of the pulse volume in both feet. It may be impossible to discover the dorsalis pedis or the peroneal pulse. The reduction in pulse volume is usually not the same in each foot. There are various methods of making a graphic registration of the reduced pulse volume. There are sphygmomanometers that will do so. The oscillogram will do so.

The foot or feet take on a peculiar red color when they are dependent (hanging down). This color is not a cyanosis. All of these are of value in the intensive study of these cases and are of particular value as an index of improvement or the lack of it, but one can almost always make the diagnosis of the existence of the disease without them. It is a purplish red color that you will remember when you have seen it a few times. One foot is usually affected more than the other. When that foot is elevated, the color leaves it entirely and it becomes very pale and anemic looking. All of these things go to make

up the diagnosis of thrombo-angiitis obliterans whether or not gangrene of the extremity is present. If any doubt exists concerning the diagnosis, the final word may be obtained from the pathologist if you will take a bit of tissue from the muscle of the leg and have it stained and examined under the microscope. The condition must be differentiated from thrombo-arteriosclerosis and from Raynaud's disease.

Thrombo-arteriosclerosis produces symptoms that are nearly identical with those of thrombo-angiitis. After differentiation must be made by the examination of tissue. The two conditions are usually found in different age groups. Buerger's disease almost invariably has its onset before fifty while arteriosclerosis comes on after fifty. Arteriosclerosis is usually a much more wide spread disease than is Buerger's. One can usually find evidences of arteriosclerosis elsewhere. While arteriosclerosis is probably always a general disease, from a clinical standpoint it is sometimes rather sharply localized. In thrombo-angiitis, the x-ray of the extremity is negative. In thrombo-arteriosclerosis, one can usually see the calcified vessels. The blood lipids are elevated in arteriosclerosis while this is seldom true of Buerger's disease. In thrombo-arteriosclerosis, there is usually evidence of cardiovascular disease elsewhere. When such conditions are present, the thrombo-arteriosclerosis often acts as a sort of governor, when the patient cannot walk far or fast because he gets pain in his legs, he is frequently saved from anginal pain and dyspnoea.

Diabetic Gangrene

The most common form of gangrene of the extremity has been known as diabetic gangrene. *Diabetic gangrene is nothing but thrombo-arteriosclerotic disease in a young or old individual.* Diabetes is accompanied by cardio-vascular degeneration. Whether or not this is due to high blood lipids that accompany poorly treated diabetes need not be argued here.

The first requirement in the differential diagnosis of gangrene is that diabetes be ruled out or proven to exist. *This may not always be done by a simple urinalysis.* It is true when diabetic gangrene is present, there is usually plenty of sugar in the urine. It is quite possible, however, that a high renal threshold may require a blood sugar of considerable height before sugar appears in the urine.

Every case of gangrene then, requires not only an examination for urinary sugar but also of the blood sugar. Now that the proper treatment of diabetes is carried out quite generally and now that diabetics are being fed adequate diets it is interesting to speculate on how much and how rapidly the cardiovascular complications will be reduced. No longer does the diabetic need to be exposed to the hazards of precocious arteriosclerosis with its attendant sequella.

Raynaud's Disease

Raynaud's disease represents the vasospastic type of vascular disease which may result in gangrene of the extremities. This disorder is not well understood even today nor is it certain that the condition is a disease entity and not a peculiar reaction of certain individuals. This disorder is characterized by an obstruction to the circulation in the hands, feet or both by symmetrical spasm of the vessels. That is, the same part of the finger or the same number of fingers is involved on either side as are the toes. This vessel spasm produces the white blanched appearance of the skin during the spasm often associated with a fair amount of pain. The vessel spasm is followed in due time by a relaxation of the vessels with a resultant raw redness and pain in the affected area. This succession of pain with pallor followed with pain and hyperemia is quite characteristic of this disorder. Examination of tissues shows no primary disease of the blood vessels such as we find in thrombo-angiitis and arteriosclerosis.

The use of the capillary microscope on the nail fold is very helpful to diagnosis. One can see the vessel spasm which actually squeezes the blood cells out of the capillaries and one can also see the following capillary dilatation. The loss of portions of fingers or toes is not uncommon but seldom is more tissue destroyed.

There is usually much more danger of confusing Raynaud's disease with scleroderma or some other skin lesion than of confusing it with the thrombotic types of gangrene. The greatest danger for confusion lies in the fact that thrombo-angiitis obliterans is invariably accompanied by a certain amount of vessel spasm, resembling Raynaud's disease. A careful examination will reveal that there is actual pathologic change in the vessels in one case and only spasm in the other. It is quite necessary

that all organic blood vessel disease be ruled out before a diagnosis of Raynaud's disease is decided upon. Even then one must search for any other systemic pathology.

Summary

Gangrene of the extremities, due to systemic disease, is either embolic, thrombotic, or spastic. The embolic type may occur in the course of numerous vascular diseases. However, these same diseases may exist for years and never produce gangrene. Gangrene in these

instances may be said to be a remote result of the disease.

Thrombotic gangrene is a part of the disease which causes it. The vascular disease producing thrombotic gangrene always produces gangrene unless the sufferer is extremely fortunate. Gangrene is a direct result of the disease.

The spastic disorder of the vessels is ill understood, but gangrene often results. Frequently the treatment of an associated disease will greatly improve the spastic phenomena.

Exophthalmic Goiter*

EXOPHTHALMIC goiter often follows an emotional upset or an infection, such as tonsillitis. A personal case followed the snatching of girl's overcoat by a negro.

Abnormal Physiology

1. Edema, including cerebral edema;
2. low blood proteins;
3. interference with heat radiation (the patient cannot tolerate heat and takes colds constantly);
4. anoxemia (this lowered oxygen content must be remembered, as inhalation anesthetics are badly borne; local cervical block anesthesia is preferable);
5. low blood iodine;
6. low prothrombin (thus interfering with coagulation) and
7. sensitive liver (postmortems show that deaths may be "diver deaths" as in phosphorus poisoning.)

Operative Criteria

These six criteria must be met before thyroidectomy can be safely undertaken:

1. *Circulatory:* Even if the patient is in congestive failure, the usual patient with exophthalmic goiter does not have severe permanent cardiac damage, following thyroidectomy. The patient with toxic adenoma suffers permanent damage. The congestive failure should be controlled with digitalis.

2. *Nutritional.* Never operate on a patient who is losing weight or who has lost much weight. Operate when he is gaining weight.

3. *Nervousness:* All goiter patients are nervous, but don't operate on patients with true psychic upsets, as all die.

4. Diarrhea or vomiting are bad signs; they tend to produce edema (edema of

the intestinal wall results in hyperperistalsis).

5. *Metabolic:* The exact figure as determined for the basal rate is not as important as the trend. Never operate on a patient with a rising level of basal metabolic rate determinations. A patient can be operated upon when rate, as shown by numerous tests, is falling despite the exact reading.

6. *Breath holding:* It has been known for a long time that surgery performed on a cyanotic patient would frequently be followed by death. The anoxemic patient cannot hold his breath. In our clinic, we have worked out a technic for breathholding tests.

The average person can hold his breath for 100 seconds. The patient who is a good surgical risk should be able to hold his breath after a full inspiration ("full chest") almost a minute and after breathing out ("empty chest") one-half as long.

The length of time is not as important as the relationship between full chest and empty chest; if the patient cannot hold his breath one-half as long with the empty chest, he is not safe for surgery.

Preoperative Treatment

Iodine or thiouracil: Thiouracil, supplied by Abbott, is given to patients preoperatively. In 2/3, the results have been magical and good surgical results have followed. It has little effect on patients who have received iodine (too many physicians think that a goiter is an indication for iodine therapy).

If thiouracil is not available, iodides are given, plus sedatives, a high protein diet (115 Gm. of protein daily) and rest is prescribed. Complete rest in bed is never enforced unless cardiac failure is present,

* Notes by Dr. R. L. Gorrell, of a lecture given by Dr. Willard Bartlett, Sr. of St. Louis, Assistant Professor of Clinical Surgery, Washington University, at Tulane University School of Medicine, Feb. 10, 1945.

Wrist Sprain or Scaphoid Fracture?

True wrist sprain is a rare injury. Fracture of the scaphoid bone at the wrist, on the contrary, is a commonly overlooked fracture. Such a fracture may be recognized clinically by:

1. Noting a slight swelling over the wrist (fig. 1),

2. Percussing the metacarpals (fig. 2); if the hand is drawn to the radial side, tenderness will be most marked when tapping on the middle metacarpal as contrasted to slight tenderness on the thumb and index finger percussion and none over the metacarpals of the ring and little finger, and

3. Palpating the anatomical snuff box (fig. 3); this area can be readily seen if the thumb is extended; with the hand turned to the ulnar side, which presents the carpal scaphoid for better palpation, marked tenderness in this area almost invariably signifies a fracture of the scaphoid. The anatomical snuff box is formed by the two thumb tendons as shown in fig. 3.

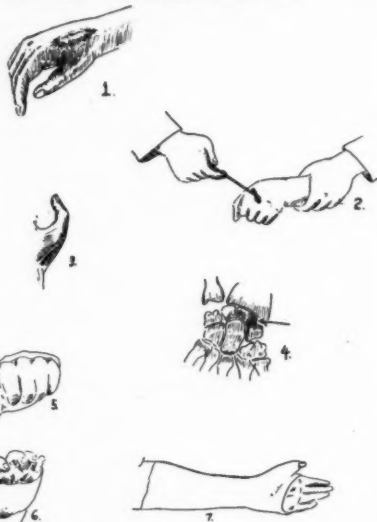
4. The fracture may be seen on the usual antero-posterior film of the wrist (fig. 4.) but quite often the fracture line is not distinct until several weeks have passed. Three or four views should be taken of all wrist injuries. Radiologist J. Edwin Habbe, M.D. of Milwaukee writes to us concerning this diagnosis:

It is my belief that the diagnosis of carpal scaphoid fractures can be quite regularly made immediately following their occurrence if there is adequate radiographic study made of these wrists. None of us can make one hundred percent correct diagnoses, if only the two conventional wrist films are taken and the case considered negative on that evidence alone. As much as possible, we like to use three views of the wrist routinely and often take a fourth, if there is anything in the clinical picture to make one suspect a carpal bone injury. If these four views are obtained before concluding the absence of any wrist fracture, then I feel that there will be very few if any carpal scaphoid fractures missed, assuming that all films are of good diagnostic quality taken with a proper radiographic technique, making certain that there is no blurring of bone detail by even the slightest movement.

Treatment: As several authors have emphasized, this fracture must be immobilized for at least 6 weeks, even when treated immediately after the injury.

Older, untreated or only partially immobilized fractures must be kept in a cast for 2 to 6 months.

Fig. 5, 6 and 7 show the proper type of cast, which firmly immobilizes the fractured area yet permits free motion of the fingers and grasping.—Ed.



(Fig. 1 and 2 are redrawn from Hamilton Bailey's "Physical Signs in Clinical Surgery," published by Williams and Wilkins Co., Baltimore.

Additional Notes

Carpal scaphoid fractures may be much more common than Colles fractures; if all wrist injuries are X-rayed from three angles, many will be found.

Cause: Falling on the base of the palm with the wrist in acute dorsiflexion (as slipping on the ice).

Fixation: 1. Clench fist. 2. Extend thumb. 3. Extend fingers at metacarpophalangeal joint before applying cast. 4. Terminal phalanx of thumb and metacarpophalangeal joints of fingers must be free; the hand must be used.

Time: Nine to ten weeks for new cases; old cases may require up to eight months.

Release: Fixation until union is demonstrated. If pain or tenderness is present, do not except X-ray report.

Rheumatic Fever III: Chorea*

By JOHN LYON, M.D.,†

Denver, Colorado

Series of cases:

One-hundred and eleven cases, recovered or markedly improved.

Two cases had one recurrence.

One case had two recurrences.

Etiology, pathogenesis: Unknown.

Pathologic changes are widespread throughout the cortex and basal ganglia; there are no localized lesions. There are no specific lesions, as the type of lesion varies, and may be those of any fatal illness.

Clinical Aspects: Uncomplicated chorea, itself, is a self limiting disease; complications are rare.

1. Relationship to rheumatic fever:

- One quarter of rheumatic children have chorea first.
- One quarter of rheumatic children develop chorea during the evolution of the disease. Acute symptoms of rheumatic fever may have been long past.
- One third to one half of children with chorea never develop rheumatic fever.

2. Clinical Picture:

- Involuntary, uncoordinated movements**, usually bilateral.
- Onset:** Movements are slight at first; the child may be thought "restless" or may drop things repeatedly.
- Later, wide, arrhythmic movement of arms and legs occur;** with facial grimaces and involvement of head muscles, and speech difficulties. The involuntary movements cease during sleep, unless very severe.
- The children are irritable, hypersensitive, emotionally unstable** ("naughty," "loses temper easily," "cries a lot").

(e) Examination:

- Awkward movements are especially noted on buttoning clothes, as the hands slip off.
- Inability to walk a straight line.

(3) Inability to keep tongue between lips (not between teeth).

(4) Inability to slowly touch fingers to thumb.

(5) Inability to write:

(f) Differential diagnosis:

| | Chorea | Hysterical Tics |
|----------------------|--|--|
| Rhythm | Irregular, without a rhythm | Rhythmical, usually. |
| Regularity | Regular | Intermittent |
| Relatives or friends | 1. No effect 2. No hysterical pattern | 1. Increased by presence of mother or relatives. 2. A pattern of hysteria in home or school |
| Local or General | Affects all muscles | Affects one part, as face or arm. |

(g) Laboratory procedures show:
no leukocytosis

no fever

no cerebrospinal fluid changes

no sedimentation rate changes

If any of these appear, rheumatic fever, usually carditis, is present; the temperature and sedimentation rate should be checked.

(h) No reflex changes occur in chorea.

(i) Emotional cause of chorea (?)

(1) Chorea occurs three times as frequently in girls.

(2) Chorea is far more common in underprivileged children.

(3) Emotional stress, domestic discord, or other upsetting factors, precede the onset in 80% of cases. In a few cases, chorea disappears after emotional stress is relieved.

(j) Diagnosis:

(1) Easy in an established case, on the basis of

(Gross incoordination

(Grimacing

(Speech difficulties

(Easy crying

(2) Muscle weakness and respiratory paralysis may be

*Notes by Medical Staff, Clinical Medicine. Rheumatic Fever Refresher Course June 4-6, 1945, University of Colorado Medical School.

†Assistant Professor of Psychiatry, University Colorado Medical School, Denver Colorado.

present; the patient may not be able to feed himself.

- (3) Chorea in adults, with pregnancy, is very severe and may go on to mania. The chorea stops after delivery.

3. Treatment:

- (a) The patient must be hospitalized as the nurse will have more authority than the mother.
- (b) Rest in bed—Quiet, no stimuli, few toys or visitors.
- (c) Mild sedation, as phenobarbital gr. $\frac{1}{2}$ three times daily; if severe chorea, give chloral hydrate or paraldehyde.
- (d) Balanced diet: 1. Fluids, if patient can't swallow. 2. Spoon feed, if necessary. 3. Nasal tube feedings may be needed.
- (e) Artificial fever with the hypertherm; this is a moist-hot-air procedure.
 - (1) Fever can be controlled, at will; the nausea and chills of foreign protein therapy (as typhoid vaccine) do not

appear, and a better leukocytosis results.

- (2) It is not too drastic, as no complications or reactions occur even when marked heart damage occurs, so there is no danger, if well trained personnel are at hand.
- (3) 105° F. is given for 2 hours, 2 or 3 times weekly; 45 minutes is required to bring body temperature to 105° F. Burns and heat collapse are inexcusable.
- (4) Six to eight treatments (12 to 16 hours of treatment) are given per patient.
- (5) Treatments are given until all purposeless movements cease.
- (6) Recurrences are cleared promptly.
- (7) Long continued cases may be cured by six to eight treatments. Too few treatments leads to recurrences. Dramatic improvement often follows fever therapy.

Removal of a Benign Tumor from the Face

By JOSEPH C. URKOV, M.D., Chicago, Illinois

The removal of a small benign tumor of the face (or any other surface of the body) should embrace the following steps, in sequence, to accomplish a satisfactory result:

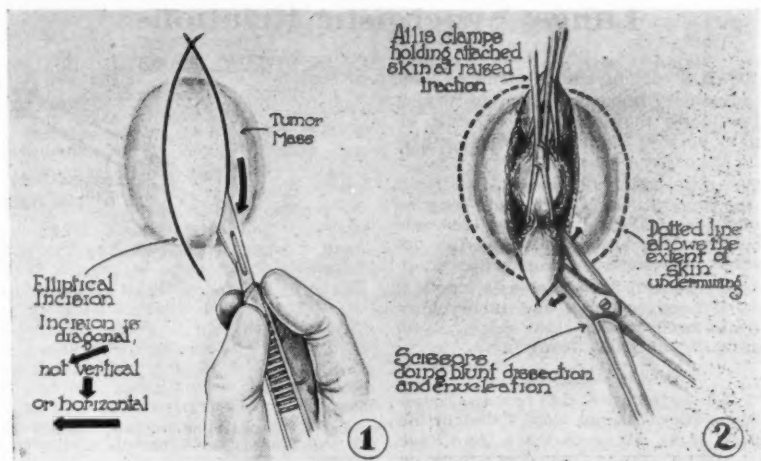
1. Two elliptical incisions to form an oval directly over the tumor area.
2. The oval incised skin is grasped with two or more Allis forceps.
3. Undermining is carried out completely around the tumor the distance necessary to bring about exact coaptation later without tension to the ultimate suture line. The tumor is then dissected out.
4. The fascia, superficial fascia and skin are sutured with single interrupted cotton material—quilting or #80 for underlying tissue; quilting or #40 for skin closure.
5. Several layers of moist gauze are placed over the operative area and dressed firmly with dry heavy roller gauze and elastic bandage.
6. Dressings are not disturbed for five days at which time skin sutures are removed.
7. The suture line is supported for an additional week to ten days with lacings of adhesive or collodion strips.

Instead of the usual horizontal or vertical incision, it is preferable to make two elliptical incisions to form an oval. The Allis forceps which grasp the oval section of skin are used for traction which permits undermining with considerable ease. The scissor finds the line of cleavage and permits the shelling of the tumor with the least amount of trauma and bleeding. The tumor and its attached oval piece of skin is removed en-masse. The dead space is closed with interrupted cotton sutures. The pressure dressing limits the amount of serum and prevents a hematoma.

Summary

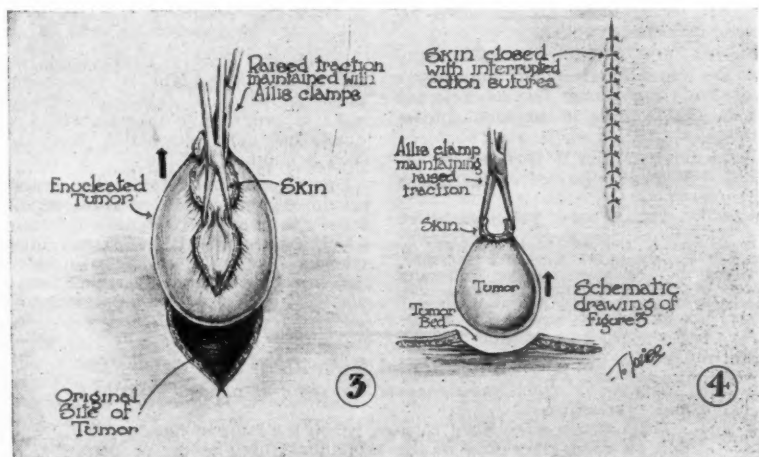
It is the practice of the surgeon to make a horizontal or vertical incision directly over the tumor mass and to proceed with dissection and undermining. It is much easier to remove a tumor in the underlying tissues with traction from the surface than to attempt the removal without such traction. Furthermore if the tumor is fluid jelly or sebaceous material, the sac may be ruptured if the forceps grasp the mass to facilitate its removal.

55 East Washington St.



1. Two elliptical incisions to form an oval directly over tumor.

2. Grasp incised skin with Allis forceps and (a) undermine skin so there will be no tension on the suture line, and (b) dissect out tumor.



3 and 4. The enucleated tumor with the attached oval piece of skin comes away en masse. Fascia and skin and sutured.

Tuberculosis and Mycotic Infections of the Lungs: Synergistic Relations*

FUNGUS or mycotic infections and pulmonary tuberculosis may coexist. Tuberculosis may follow a mycotic infection or may inhibit recovery, especially in cases of aspergillosis.

The differential diagnosis is difficult as the physical and x-ray signs may be almost identical. The finding of tubercle bacilli in the sputum does not rule out mycotic infection.

A relationship of symbiosis (mutual benefit) between fungi and tuberculosis has not been proven. Can mould infection inhibit antibody formation?

Clinical Study

In 300 consecutive tuberculous hospitalized patients, fungi were found in the sputum of 45. Many of these may have been saprophytic as fungi were found in the trachea of only 18.

Rabbits were injected with the fungi and in every such case (12 in all) the fungi were recovered, 16 days after inoculation, and lesions found, mostly of filamentous type.

Diagnostic pointer: If tuberculosis runs an unusual course, if there is a fast onset (less than 10 months) and rapid progress, or if there are repeated relapses, look for fungi.

Mycelia are found more frequently than the yeast fungi. Fungi may lower the patients resistance. The tubercle bacilli is closely related to fungi phylogenetically.

Discussion by Major R. W. Goen, M. C., A.U.S., Medical Service, Fitzsimons

*Abstracts from a paper presented before the American College of Chest Physicians, Colorado Group, Denver, Sept. 27, 1944, by Alvis E. Greer, M.D., F.A.C.P., F.C.C.P., Professor of Tuberculosis, Baylor University College of Medicine, Houston, Texas. Abstracted by Medical Staff, Clinical Medicine.

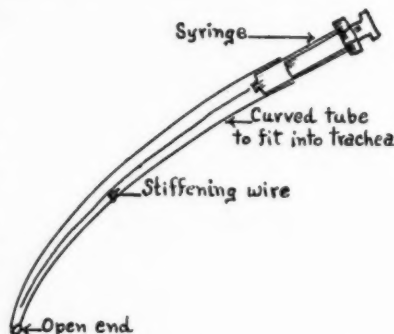


Fig. 1 illustrates the tracheal aspirator used in obtaining uncontaminated specimens of sputum.

General Hospital, Denver: A sputum specimen may not be satisfactory for identifying fungi. Such precautions should be taken as the following: Brush teeth, wash mouth, then the sputum specimen should be obtained by coughing at once.

Tuberculosis may be activated by: 1. Whooping cough, 2. Measles, 3. Dust exposure.

Pneumonia rarely aggravates tuberculosis except for type III pneumococci. Lung suppuration (abscess) often results in progressive tuberculosis. Cocciidiomycosis and cavitation have been seen a number of times.

Dr. Greer: In obtaining a tracheal specimen, anesthesia is obtained first, then a curved rubber tube, containing a wire to keep it stiff, is passed into the trachea 2 cc. of physiologic saline solution injected and quickly withdrawn (aspirated), with an attached syringe.

Fundamental Definitions

Science is exact knowledge of the facts of nature, classified and systematized.

Truth is the established relation which the facts of nature sustain to each other and to the Individual Intelligence, or Soul of Man.

Philosophy is the conclusions which men, in their search for knowledge of Truth, have drawn from the facts of Science.

Religion is the application of the facts of Science and the conclusions of philosophy to individual life and conduct.

Failure of Gallbladder Contractility in Cholecystography

By HAROLD SWANBERG, M.D., F.A.C.P.,* Quincy, Illinois

ROUTINE cholecystography: 1. take roentgenograms 14 to 16 hours after the administration of a suitable contrast media; 2. give the patient a fatty meal, 3. take another roentgenogram one hour later. In the normal patient the gallbladder is uniformly and densely visualized and, following the fatty meal, it is shown markedly contracted. What is the clinical significance if the gallbladder fails to contract?

Practical points in the usual gallbladder evacuation response have been summarized by Hartung and Grossman: 1. "Bile concentrated by its mucosa is expelled by tonic contractions of the gallbladder wall through the ducts into the duodenum. Contractions are initiated by the hormone cholecystokinin, derived from the duodenum in response to fat digestion. Simultaneously with contraction of the gallbladder, the sphincter of Oddi and duodenal musculature relax, thus permitting entry of the bile into the duodenum." These same authors list the causes of failure of the gallbladder to empty as follows: 1. "Absence of cholecystokinin formation. 2. Dysfunction of the gallbladder musculature. 3. Lack of patency of cystic and common ducts. 4. Improper function of the reciprocal mechanism of the gallbladder, the duodenum and the sphincter of Oddi. 5. Reflex disturbances."

Bacon² recently reported a detailed study of the surgical and pathologic findings in 12 patients who had adequate concentrating ability but poor gallbladder contractility. On the basis of the X-ray findings all these patients were considered to have partially functioning gallbladders. Bacon's findings are in agreement with 57 other reported cases by various authors, all being corroborated at the operating table or under the microscope. Pre-obstructive carcinoma of the distal colon was the proved diagnosis in one of Bacon's patients, (poor emptying was probably of reflex origin). In the remaining 11 patients, organic gallbladder wall disease was found and faulty evacuation was attributed to diminished contractibility caused by adhesions about the gallbladder or its ducts, or to inflammatory disease of the

gallbladder wall. The surgical end-results of these eleven patients were one patient died of the primary disorder—pancreatic cyst with infection, eight were relieved of their right upper quadrant symptoms and the remaining two were definitely improved following their surgical procedures (cholecystectomy or cholecystostomy).

Bacon's conclusions: Those gallbladders that contract poorly (have not emptied 50 per cent or more within three hours after a fatty meal) warrant a diagnosis of abnormal biliary tract function even when this is the single variation from the usual response. If a good clinical history of gallbladder disease is present in such a case, surgical treatment will relieve the patient.

Bibliography

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2. Bacon, Ralph D.: The Fat Meal: Its Value in Cholecystography, *Penn. M. J.*, 47:137-143 (Nov.) 1943.

Discussion

By HOWARD CURL M.D.

Everyone is entitled to his own conclusions as to the factors interfering with gallbladder evacuation. It seems to me then an analysis of causes would end something like this:—

1. Absence of cholecystokinin formation. If this were a factor the gallbladder would not have been emptied before the administration of the contrast media and the gallbladder would, therefore, not have been filled with dye.
2. Dyskinesia of the gallbladder is generally recognized as one of the causes of slow emptying.
3. Lack of patency of the cystic and common ducts—it must be remembered, although apparently often forgotten, that the gallbladder also fills through these same ducts, i.e. occluded ducts—no filling.
4. Reflex disturbances: There seems to be good evidence that the gallbladder may be reflexly inhibited by lesions in other parts of the gastrointestinal tract. Adhesions about the gallbladder are

*Editor, Mississippi Valley Medical Journal and Radiologic Review.

probably a frequent cause of the so-called "biliary dyskinesia." In the study of normal cases I was convinced that there was a definite individual variation in the response to the fat meal. This, however, should be manifest in the poor filling as well as delay in emptying.

I believe the one case in which delay in gallbladder evacuation may be an important point in diagnosis is the "strawberry gallbladder." The increase in blood supply to the mucosa causes more

rapid absorption of fluid, causing an increased concentration of gallbladder contents and thus making evacuation more difficult. The inflammatory condition inhibits muscular contraction also. In any case showing greater concentration than the average, such a condition should be suspected.

Finally, I believe that any patient showing nothing more than a delay in emptying time should be re-examined before submitting to an exploratory operation.

The Diagnosis of Minimal Tuberculosis*

IT HAS been said that four-fifths of all cases of pulmonary tuberculosis are moderately or far advanced when first diagnosed. To improve this poor showing, we must study a large group of cases over a period of time sufficiently long to watch the development of cases in previously normal, or apparently normal, lungs.

Captain W. H. Roper, M. C., Army of United States, Medical Service, Fitzsimons General Hospital, Denver has had this opportunity.

He reported that of a series of patients with tuberculosis of the lung discovered in the Army, *only 20 per cent could be diagnosed or even reasonably suspected by the presenting symptoms* (those about which they complained on reporting for medical care).

"Tiredness," "cigarette cough" and "coughing up blood" were complained of.

Only one patient in five had any physical signs of lung disease. Fine rales heard in the upper lung after coughing (post-tussive) or voice changes were heard.

One-half of the patients were found to have slight fever (with a variation of two degrees or more between morning and evening) and tachycardia.

Laboratory

Sputum specimens must be accumulated over a 12 hour period, unless at least one ounce can be obtained in a shorter time. Sputum specimens should be examined repeatedly. If persistently negative, they could be concentrated, in the laboratory, and guinea pig injections performed. Cultures are now almost as

sensitive as a guinea pig test. The culture should be checked by the injection to ensure against a false positive test.

Fasting gastric contents should be examined on several successive mornings if sputum cannot be obtained by coughing. Such contents must be concentrated or injected into guinea pigs; the smear is worthless because organisms which look like tubercle bacilli will be found. One may use some distilled water before aspirating the stomach contents.

The white blood count, differential count and sedimentation rate will aid in the differential diagnosis and estimation of activity of the process. In 70 per cent of early cases the sedimentation rate was not elevated.

Tuberculin Test

The tuberculin test is not infallible, but repeated negative tuberculin tests should be an indication for re-study of the case.

X-Ray

A stable lesion is usually inactive; an unstable, changing lesion is usually active.

Serial x-rays are most important. If an infiltration does not clear after a few weeks rest, one must consider tuberculosis.

Differential Diagnosis

1. *Atypical (virus) pneumonia:* Usually symptoms of lung infection are present and usually these symptoms and the x-ray clear rapidly.

2. *Old scars:* Quickly ruled out by serial films and the above laboratory procedures.

3. *Coccidiomycosis* resulting from the dust of the southwest, can be identified by skin tests, serologic tests and sputum examination.

*American College of Chest Physicians, Denver, Sept. 27, 1944. Notes by Medical Staff, Clinical Medicine.

4. *Other fungi*: If inactive, it may be impossible to make a differential diagnosis. Other fungi may cause infiltrating lesions.

5. *Bronchiectasis*: The bronchiectasis may be of tuberculous origin. Usually, there is much purulent sputum in bronchiectatic cases. The lesion tends to be in the base or lower lobes, more commonly.

6. Lung abscess, malignant tumor, non-tuberculous fibrotic patches and leukemic infiltrations may also need to be ruled out.

Treatment

1. The patient should be hospitalized for 2 months for psychologic reasons (adjustment to life in bed, education as to disease and dangers to friends and relatives, emotional adjustment) and to learn how to amuse himself.

He may remain in bed at home, if some one will care for him. As soon as possible, light occupational therapy (working with the hands) should be begun and he should be permitted to go to the toilet at an early date. *Don't make an invalid* out of him. He should have light exercise as soon as possible.

Some cases of tuberculosis have been cured without any one's knowledge and without treatment. The chest x-ray on admission to the Army would show no lesion, yet the film taken after the man returned from active combat duty in fox holes clearly indicated a healed lesion. The good food may have had some bearing.

2. If the disease spreads, one should elevate the diaphragm by crushing or removing a portion of the phrenic nerve, or inject air and compress the lung.

Summary

The tubercle bacillus is inhaled into the bronchial tree. It then spreads by blood and lymphatic vessels. The primary response is healing (productivity) and sensitization. The lesion is usually apical or subapical, in the upper lobes.

Re-infection (adult) tuberculosis commonly presents exudation, with later fibrosis and calcification.

Diagnosis: Eighty per cent of cases were picked up on routine chest x-rays; twenty per cent complained of suggestive symptoms. An additional twenty per cent recalled suspicious signs or symptoms after direct questioning (weakness, loss of weight, blood streaked sputum, chest pain). Thus, *sixty per cent were symptomless*. Only a very few knew of exposure to tuberculosis.

Bacilli were found in only 54 per cent of cases by the usual laboratory procedures. In 46 per cent of these early cases, culture and guinea pig inoculation were needed.

Dr. Giese discussed the paper. He recalled Lawrason Brown's old maxim concerning tuberculosis:

If physical signs are present but no symptoms—not serious.

If symptoms are present but no signs—watch out.

Examination of the chest is relatively easy. First, find if there is anything abnormal detectable by physical examination and x-ray. If a lesion is found, think of tuberculosis first. If it can't be definitely diagnosed, think of the differential diagnostic possibilities.

If tuberculosis is present, what should we do with the patient? We don't know how long it has been present. If asymptomatic, should the patient be treated? Often they are working hard, the lesion is healing and there are no symptoms.

There is a great difference in patients with tuberculosis. Some cases are minimal when first seen yet progress rapidly despite all care and die within 2 years.

Other patients recover from minimal or moderately advanced tuberculosis with or without treatment. There is no definite way of determining future progress.

If minimal tuberculosis gets better and then relapses, do not delay compression therapy (artificial pneumothorax or phrenic nerve crushing).

Dr. A. R. Masten: This paper is important because we are going to find many more minimal cases of tuberculosis as more and more apparently healthy persons are x-rayed. One per cent of all persons show re-infection tuberculosis (this figure is higher in certain crowded, poverty stricken areas and in certain races—Ed.) A high percentage are minimal (23 per cent) and moderately advanced (60 per cent), which is just the reverse of the percentages found in the sanatoria.

Treatment should include the follow up and x-raying of all contacts, instruction to the patient as to disposal of sputum and care of dishes. Patients with active lesions are urged to accept sanatorium care, so they can learn to live with their disease.

Dr. Waring: An explanation of the various outcomes may depend upon: 1. The constitution of the patient, and 2. His psychiatric background.

Cystic Disease of the Lungs*

CYSTIC DISEASE of the lungs may be congenital or acquired. Definition: "A sac or cyst in the lung area not occupied by alveoli or other normal lung tissue."

Classification

- | Congenital | Acquired |
|-------------------------------|----------------------------------|
| 1. Solid or liquid containing | 1. Tuberculous cavities |
| 2. Air containing | 2. Coccidiomycotic |
| | 3. Parasitic cysts |
| | 4. Lung abscess acute or chronic |
| | 5. Bronchiectatic cavities |
| | 6. Emphysematous bullae |

Congenital cysts are often (1) lined with bronchial epithelium and their wall contains such bronchial material as cartilage and muscle, (2) traversed with strands of lung tissue and (3) found in young persons (children, even in the fetus). These points are not absolute as one or all may be found in acquired cysts. There is usually less lung reaction around a congenital cyst.

Acquired cysts are formed by dilatation and excavation. An epithelial lining or inflammatory membrane may compose their innermost membrane.

Tuberculous cavities, parasitic cysts and coccidiomycotic cysts are differentiated from congenital cysts by skin tests and by serological tests which help to rule out echinococcus and coccidiomycotic infections.

The differentiation of lung abscess, bronchiectatic cavities and emphysematous bullae may be very difficult. The x-ray is of great value.

A cyst may show dimensions larger than those of a bronchiectatic cavity and the bronchi entering it are often of normal size. Cysts often occupy the middle and upper lobes. Acquired cysts are rare in infants.

But inflammation may destroy the cyst wall and its epithelial lining, a lung abscess may become chronic and become lined with epithelium and a bronchus may be larger or smaller than normal in a cyst. Some authorities believe that a congenital cyst can only be suspected, except in a child with an infected cyst.

Summary

The differential diagnosis between a congenital and acquired cyst is not too important as the treatment is the same. The threat to life or damage to lung tissue must be recognized.

*Abstracted from a paper given by Major Robert Liggett, M.C., U.S.A., Fitzsimons General Hospital, Denver, Colo., Sept. 27, 1944.



Fig. 1

Fig. 1 shows a diagrammatic representation of the chest x-ray of a boy of 19 who had "pneumonia" five times since the age of 2. He had pneumonia at 18, following which the cyst shown was found in the right lower lung. The lobe was removed surgically and the patient made a good recovery. Pathologically, it proved to be a bronchiectatic cavity which was lined with epithelium yet whose wall contained no bronchial elements.

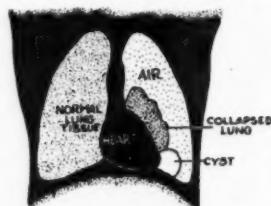


Fig. 2

Fig. 2. This man of 35, while lying quietly in bed, was suddenly seized with severe left chest pain, which was followed by dyspnea, chills and fever. A diagnosis of pleurisy was made and the chest was taped. (a) shows that a spontaneous left pneumothorax and taken place, (b) taken after the pneumothorax had subsided shows a cyst or emphysematous bulla in the left lower lobe and (c) is the lateral view.

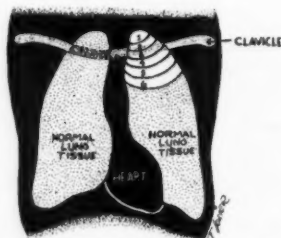


Fig. 3

Fig. 3. This boy of 15 had repeated studies made of the extension of a left upper lobe cyst which was gradually destroying the lung and for which a lobectomy was necessary. The numbered lines indicate the extension of the cyst within a period of 15 months.

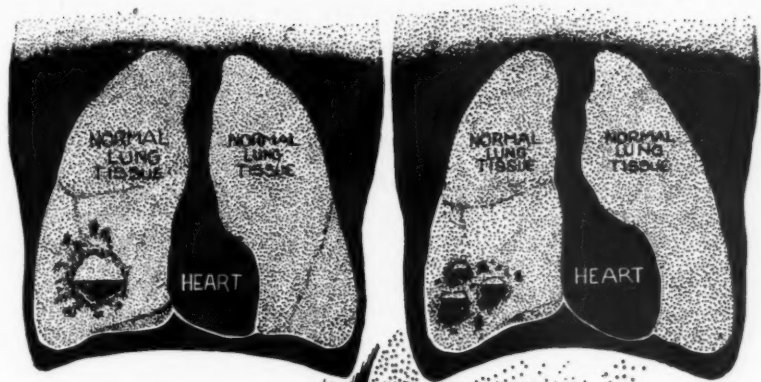


Fig. 4

Fig. 4. This 12 year old boy aspirated a tooth into the lung. It could not be removed bronchoscopically and remained in the lung for 2 months, at which time it was coughed up. A lung abscess is the usual termination rather the multiple, bronchiectatic cavities shown in the right lower lobe (there is a possibility that these are multiple cysts). The plain chest film showed little; the Lipiodol instillation clearly outlines the cysts and their fluid levels.

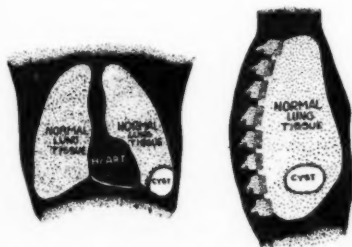
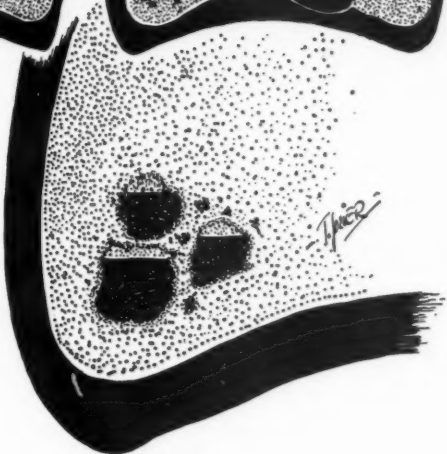


Fig. 5

Fig. 5. This girl of 16 had "pneumonia" five times before the age of six, then no symptoms until 16 at which time she had pneumonia twice. She did not recover from the second pneumonia. The cavity shown was drained and a lobectomy was performed later. At the time of operation, a bronchoesophageal fistula was found. The

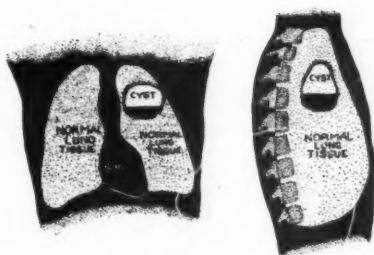


Fig. 6

most probable conclusion was that the cyst had been infected six times.

Fig. 6. Illustrates a congenital cyst of the left upper lobe, which had become infected and was drained by an osteopath with a catheter. After the catheter was removed, the productive cough recurred and lobectomy was necessary for cure.

Malaria Control in Burma*

LITTLE known medical units in India and Burma have been winning a prolonged, exacting struggle against one of mankind's most dread diseases—malaria.

One of the world's worst malarial areas stretches across India and Burma, where Americans in 1942 were assigned to work and fight after the Japanese conquest of Burma and the enemy's initial threat to the security of India itself.

Stringent control measures have reduced the malarial rate to less than one-eighth of the original figures predicted by British officials.

When work began on the Stilwell Road, troops in the Ledo area were infected in large numbers. Predictions of failure were based on vital statistics which showed that more than 100,000,000 persons were afflicted with malaria every year in India. More than 1,000,000 of these die from the disease every year.

Dr. Earl M. Rice with 20 years experience in this area, was commissioned a lieutenant colonel in the Army medical corps and assigned the control task. With a specialist's knowledge of malaria and with his long residence in the heart of the area where malaria had to be whipped, he was the ideal man to handle the job.

Control units consisted of a sanitary corps officer with engineering background and 11 enlisted men. Their job was actual physical control — drainage to eliminate breeding spots, oil and Paris Green (an arsenic compound) spraying to kill larvae, mosquito-proofing quarters to prevent bites by the infected insect, and spraying to kill the adult mosquito. Survey units laid the ground work for control. They evaluated areas as to their relative importance as breeding centers, decided which to treat first, and examined blood and spleens of native children to determine incidence.

Equipped with complete portable laboratories, these highly trained specialists worked ahead of and with the control units. When they found enlarged spleens in children up to 12 years of age, they knew they were dealing with a population actively infected with malaria. (Children provide a more accurate criterion of the degree of active infection because of the immunity factors in adults which make a spleen reading un-

reliable.) Then they took blood smears to determine the parasites.

Malarialogists say that a 25-per cent spleen rate is bad, but in Assam and Burma the rate consistently exceeded 90 per cent and often rose to 100 per cent.

Shortly after Col. Rice took over his tremendous job, two of each of these units were obtained from the United States and put to work. During the ensuing period, the number of survey and control units increased greatly.

Normal delays were encountered during this early period because of the inability to get equipment and supplies rapidly from the states. Had not the War Department given malaria control supplies a shipment priority equal to that of food and ammunition, the fight would have been prolonged at the expense of soldiers' health and lives.

Sections of India and Burma each presented problems peculiar to the area. The *anopheles philippinensis* was worst in Bengal. This species multiplied rapidly in innumerable ponds and tanks which were virtually impossible to drain.

Assam, dotted with tea plantations and rice paddies, was found to be a hyper-endemic area—with 50 per cent or more of the population stricken. Seepage areas were worst during the monsoons. The *anopheles minimus*, probably the most violent mosquito carrier known, was the prevalent type of species.

In the Patkai hills—foothills of the Himalaya mountains—along the Assam-Burma border, where the Stilwell Road now threads its way towards China, thick vegetation along the mountain streams offered ideal breeding places for the *anopheles minimus*.

In the Hukawng valley, the survey teams found in the dense virgin tropical forest not only the *minimus* but also its dread runner-up, the *anopheles leucosphyrus*. Yet along this route the Americans forged an all-weather road and fought their battles against the Japs.

Great strides have been made since Col. Rice began the pioneering job of stamping out malaria in the worst area in the world. It has not been stamped out completely, nor will it be until control measures are universally adopted. But the rate for American troops has dropped below all previous hopes, and there's every reason to believe it will continue to decrease.

*A release from New Delhi, India, cleared for publication by Press Censor of U.S. Army, China, India, Burma Theater.

The Problem of Diagnosis in Mumps

A Seminar

SOME 35 pediatric and contagious disease experts from all over the country have sent in their comments, extracts of which are reproduced below. All agree that *there occurs in mumps no single distinctive feature which may be regarded as pathognomonic*. The diagnosis cannot be made without consideration of the sum total of symptoms and signs, and these frequently are bizarre and puzzling.

Introductory Remarks

By IRVING J. WOLMAN, M.D.
Children's Hospital
Philadelphia, Pa.

The great majority of patients ill with mumps display parotid swelling, one-sided or bilateral. The problem of diagnosis in mumps can therefore be broken up into two main elements:

1. How to distinguish mumps parotitis from other kinds of acute swellings in that anatomic region, including non-mumps parotitis.

2. How to identify the existence of mumps in affected patients whose parotids escape involvement.

Differentiation Between Mumps and Cervical Adenitis

Physical Features: The edema and swelling are even more prominent in the adjoining tissues than in the attacked glands. This edema is soft and feathery. Careful palpation is necessary to find the deeply situated firmer gland within the area of soft edema. In cervical adenitis, the zone of accompanying peripheral edema is comparatively less extensive, and the contour of the central node or nodes can be felt without much difficulty.

Constitutional symptoms: Fever, headache, pains and aches, when present, may appear 1 or 2 days prior to the onset of local signs, or coincidentally, but often these are minimal or absent. Mumps tends to evoke a leukopenia and lymphocytosis; acute cervical adenitis is usually accompanied by a neutrophilic leukocytosis. The latter condition almost always complicates an antecedent head cold, pharyngitis or tonsillitis.

In mumps, local pain often antedates the swelling by 1 or 2 days. This pain, at times described as "tightness," centers behind the angle of the jaw. It may become aggravated by chewing or by taking acid foods such as lemon.

Clinical Progress: One or more salivary glands may be attacked, either simultaneously or over a 1 to 7 day period. When the glands are on the same side of the face, the edematous areas will

blend into one another. *One of the most reliable guides to the true diagnosis is the successive involvement within a few days of several different glands.* In mumps each individual gland swelling reaches its maximum in about 24 hours, whereas in cervical adenitis the peak is reached more slowly. In cervical adenitis, redness and edema of the buccal mucous membrane about the orifices of the salivary ducts is absent, but this is not an uncommon finding in mumps. Pressure on the affected parotid may force a little clear secretion out of the duct opening.

Non-parotid Mumps: In the majority of patients, one or both submaxillaries or sublingual glands become attacked. Occasionally, however, the disease will restrict itself to the submaxillary or sublingual glands without at any time involving the parotid.

Submaxillary Mumps

In submaxillary mumps, the site of the most prominent enlargement lies under the parotid, below the angle of the jaw, with edema spreading up toward the ear, anteriorly over the cheek, and downward onto the neck. Often but one submaxillary is implicated.

Sublingual Mumps

In sublingual mumps the swelling is almost always bilateral, with the swelling confined to the interior of the mouth and only rarely in the submental region. When the patient rolls the tip of his tongue upward, one will see an elevation and flattening of the floor of the mouth, with unusual prominence of the paired sublingual folds.

Virus vs. Bacterial Parotitis

Differentiation between true (virus) parotitis and suppurative (bacterial) parotitis or other disease of the parotid: Though suppurative parotitis may come on as quickly as does mumps, it is more common in older individuals, and as a rule complicates some other disease. The patient with psychiatric disturbance, or with a foul or thrush stomatitis, or recovering from an operation, or ill with in-

fection elsewhere in the body such as scarlet fever or typhoid fever, is the one likely to develop an infection in his parotid—not the healthy adult or child. Pressure over the enlarged gland in suppurative parotitis may squeeze out cloudy or milky fluid. The neutrophil count will be raised. A central abscess may ensue.

Salivary Stone

A calculus may block the duct of the parotid or of one of the other salivary glands, and cause enlargement. This kind of swelling is intermittent, causes no fever and lasts for some time. The calculus may be palpable, or demonstrable by x-ray.

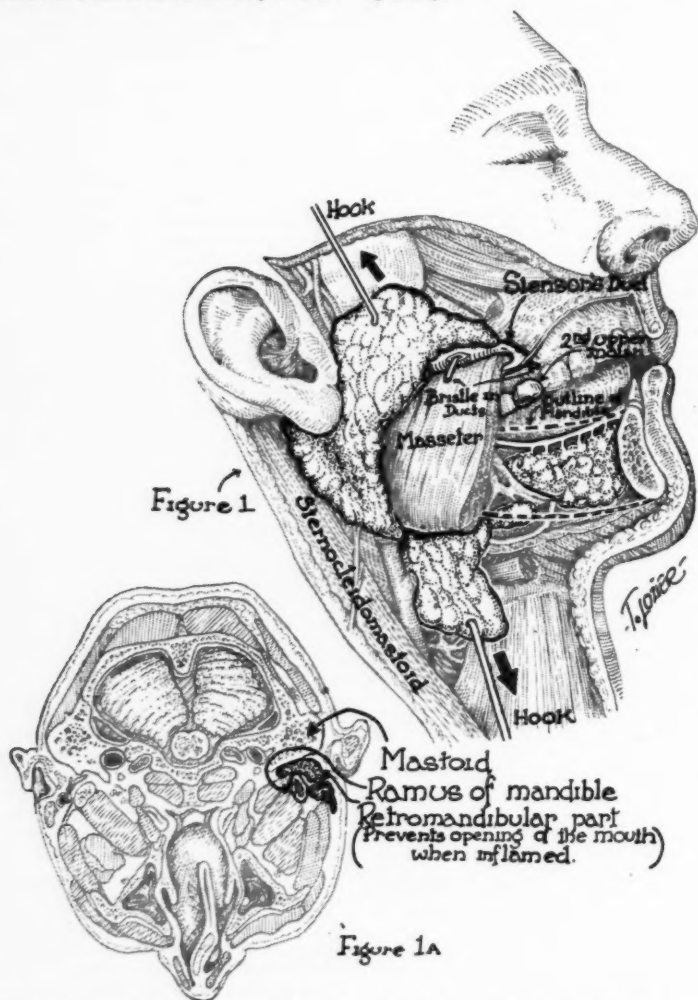


Fig. 1. Anatomy of the salivary glands, as shown by dissection (modified from Rauber-Kopsch). Note the opening of the parotid duct (Stenson's duct) opposite the second molar tooth. The parotid, submaxillary and sublingual glands are clearly indicated.

Fig. 1a. Anatomy of the parotid gland (modified from Eycleshymer and Shoemaker) indicating the portion of the gland lying behind the mandible (retromandibular part). When the gland is inflamed, opening of the jaw and mouth compresses this part and causes pain.

Mikulicz's Syndrome is a bilateral, chronic, painless enlargement of the parotid and lacrimal glands which occasionally accompanies leukemia and related disorders. Identification is not difficult, if the possibility is kept in mind.

Mumps Complications

Diagnosis of complications presents little difficulty if the features of salivary gland involvement have already appeared. The problems arise when the complications precede the parotitis, or when they occur as single solitary expressions of the infection without the salivary glands ever being involved.

Orchitis

Orchitis is almost unheard of in young children, but occurs in one-fifth to one-third of adult male patients. It most often begins in the second week, but may coincide with or even antedate the parotitis, and sometimes appears as the sole manifestation. Fever and malaise are present at the onset. The testicle swells to as much as 3 times its normal size and becomes painful and tender. The lesion is usually in the testis itself, with the epididymis commonly swollen also. Bilateral involvement is sometimes seen and about half of the cases are left with some atrophy. Sterility is theoretically possible if both testes have been permanently damaged.

"Meningitis"

Meningo-encephalitis with frank evidences of central nervous system disturbance is seen but seldom. Most mumps patients, however, if subjected to a spinal tap at the height of their illness, will be found to have a slight increase in the lymphocyte content of the spinal fluid. The signs when present are those of meningo-encephalitis. The spinal fluid is under increased pressure, clear or slightly opalescent, positive for globulin, and contains 50 to 1,000 cells per cc., most of which are monocytes. An attack is rarely prolonged beyond a week.

Pancreatitis

Pancreatitis is recognizable in about 1 per cent of the cases. The symptoms are epigastric pain and tenderness, persistent nausea and vomiting, and slight fever.

Presternal Edema

Presternal edema may appear early. This is restricted to the soft tissues over the manubrium from the thyroid area down to about the third interspace, lasts but a few days, is painless, and subsides spontaneously. Nephritis, oophoritis, per-

ipheral neuritis, deafness, swelling of the thyroid, thymus or lacrimal glands, cervical adenitis, conjunctivitis, suppuration of the parotid due to secondary infection, are rare complications.

Laboratory Diagnostic Aids

1. Blood amylase: The intrinsic starch and glycogen-splitting power of human blood, known as the blood amylase, becomes elevated in 95 per cent of cases of mumps parotitis. Though this increase is not specific for mumps, being found also in pancreatic disease and other conditions including suppurative parotitis, the test is helpful in distinguishing involvement of the parotid itself from infection of lymph nodes in that anatomic area. Negative results are given with mumps orchitis and meningo-encephalitis unless the parotids have also been attacked. Determination of blood amylase is easy to carry out provided the available laboratory has the necessary reagents, equipment and experience.

2. Complement fixation and skin tests: These are still under development. From the parotids of experimentally infected monkeys Enders has prepared an extract which is said to be a reliable antigen for complement fixation and skin testing. With this it is believed, immunity or the lack of immunity to mumps can be demonstrated. Full details have not yet been published.

Atypical Mumps

By ALLEN DALEY

Medical Officer of Health, London (Eng.)
County Council

The only occasion on which one might reasonably regard a sign or symptom as pathognomonic is where significant occurrences such as orchitis, acute pancreatitis or meningo-encephalitis are noted in connection with salivary gland swelling or even the appearance of these changes in persons who had been in contact with mumps but in whom no salivary gland enlargement had occurred.

Differentiation From Cervical Adenitis

By OLIVER L. STRINGFIELD, M.D.

Regional Chairman, Region I
American Academy of Pediatrics
Stamford, Connecticut

Often mumps is mistaken for cervical adenitis. As a rule this can be easily differentiated, if you remember the origin of infection which is responsible for the enlargement of the gland. For example, the scalp infection will always

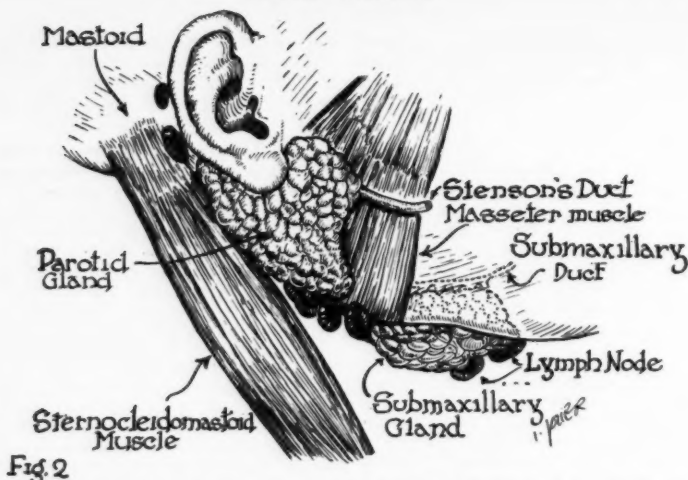


Fig. 2

Fig. 2. Anatomy of the salivary glands, illustrating the "horse-shoe" shape of the parotid gland under the ear. The submaxillary gland is shown, together with its duct, and its relationship to the lymph nodes in the area. (Adapted from Grant)

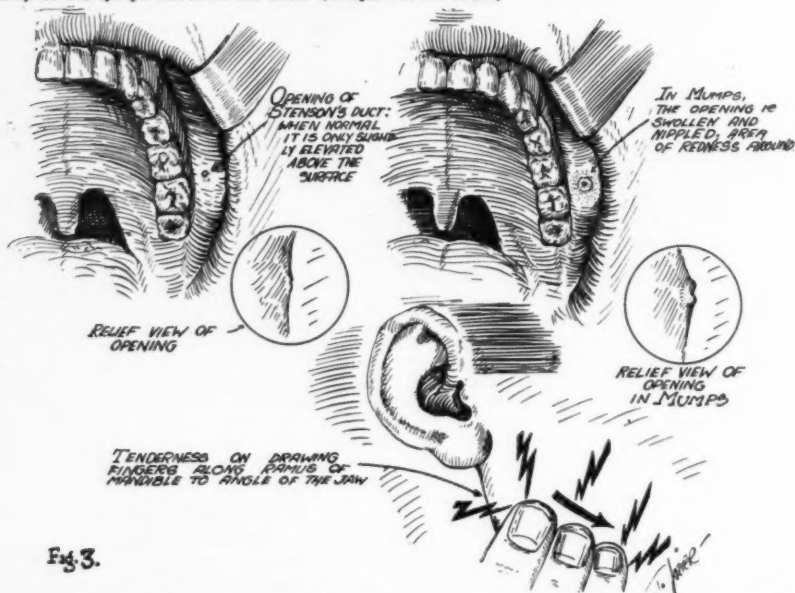


Fig. 3.

Fig. 3. Early signs of mumps include 1. swelling, redness and "nipples" of the opening of Stenson's duct and 2. tenderness on drawing the fingers along the ramus of the mandible toward the angle of the jaw.

The opening of Stenson's duct is easily found by looking inside the cheek which lies against the upper second molar tooth. Normally, the opening is just visible as a slightly elevated, non-reddened opening. In many cases of parotid mumps (Stenson's duct is the salivary duct from the parotid gland), the opening becomes inflamed, swollen, appears like a nipple, and an area of redness appears around it.

Stroking along the duct from the parotid gland toward the opening does not bring forth any secretion in mumps. In infective parotitis, such as may follow operations and serious illnesses, such massage elicits purulent secretion.

give an enlargement of the cervical glands behind the ear; the sub-orbicular group of glands are enlarged from an infection in the ear, the sinus, the throat, the eye, and posterior parts of the tongue; the submaxillary group may be enlarged from the infection in the

tonsils or the teeth; the inferior maxillary group are only enlarged as secondary to the maxillary group or an infection from the tip of the tongue. This differentiation I think could readily be used to clear up the diagnosis of mumps.

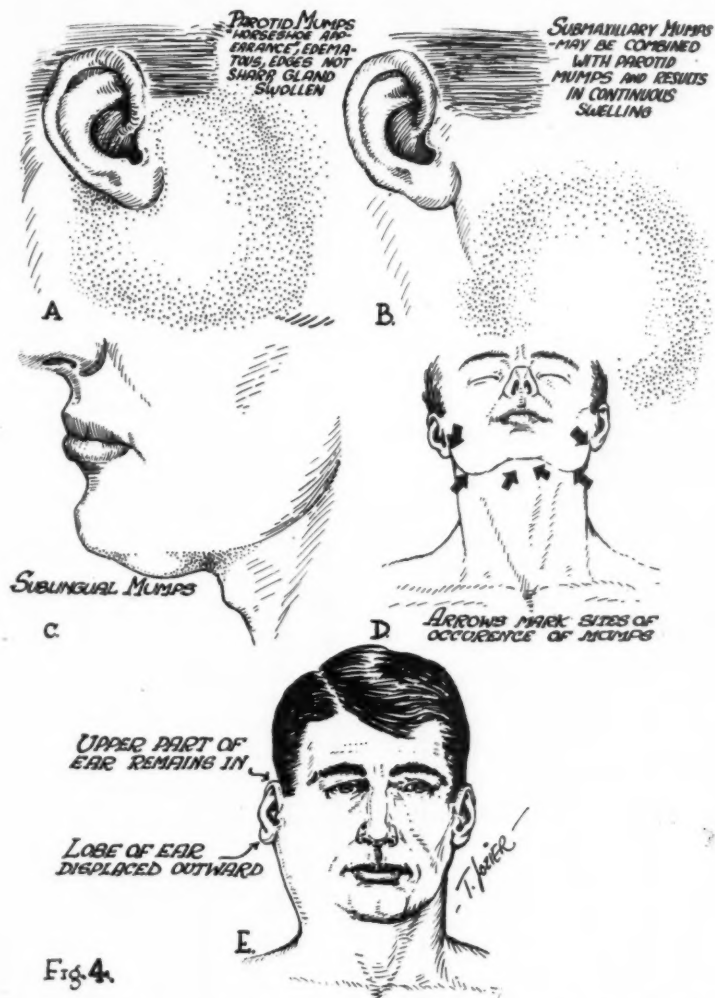


Fig. 4.

Fig. 4. Clinical appearances of A. mumps involving the parotid, B. the submaxillary and C. the sublingual glands; D. indicates the sites of mumps occurrence; E. the typical outward displacement of the lobe of the ear. The horseshoe appearance of the parotid gland is indicated. The swelling of mumps is of a soft, edematous nature, as contrasted to the sharply outlined edges of an enlarged lymph node. The mumps swelling is often tender.



Fig. 5.

Fig. 5. The location of lymph nodes on the face and neck (adapted from J. C. Boileau Grant's "Atlas of Anatomy"), illustrates the old clinical dictum, "The swelling of lymph nodes is usually lower than that of mumps."

Complications

By MARGARET H. D. SMITH, M.D.
Baltimore City Health Department
Baltimore, Md.

The complications which we see most commonly are:

1. Meningocephalitis (Characterized by headache, rise in temperature, stiff neck, and vomiting). Seems to be commonest complication in children and occurs usually at, or near, the onset of the illness.

2. Orchitis, the commonest complication in adult males, occurs at any time during the course of the disease. The diagnosis in this case is easy enough consisting of intense pain, local swelling, and high temperature. Bradycardia and vomiting sometimes accompany orchitis.

3. Abdominal pain and vomiting occurring during the course of mumps sometimes gives a good deal of mental anguish to the attending physician. They

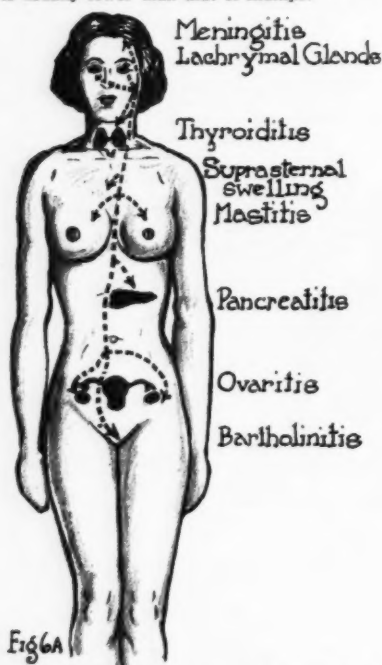


Fig. 6A

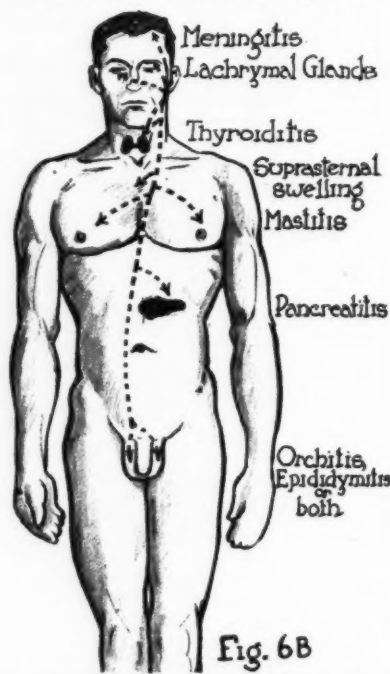


Fig. 6B

Fig. 6A. Complications of Mumps: 6A diagrammatically illustrates the locations of complicating or metastatic infections in the female, meningitis including deafness, lachrymal gland (tear gland) inflammation, thyroiditis, swelling over the sternum, mastitis, pancreatitis, ovaritis (oophoritis) and Bartholinitis.

Fig. 6B. Indicates the complications in the male, which are the same except that orchitis or epididymitis occurs.

are most commonly due to pancreatitis or, in females, oophoritis.

The parotid gland is the most commonly involved but we occasionally see mumps with involvement of the submaxillary glands or any of the other glands. The diagnosis in such a case, it seems to me, can be made only by a history of exposure and the exclusion of other possible diagnoses.

Complications

By WALDO E. NELSON, M.D.

*Temple University School of Medicine
Philadelphia*

In children, orchitis does not appear to be common. In adults, it is present in about one third of the cases, and in some instances occurs without parotitis. It seems to me that the particular difficulty arises in those cases in which there is little or no inflammation of the parotid gland. In such cases, diagnosis is mostly based on the presence of an epidemic. Mumps pancreatitis is not common. Meningo-encephalitis is an infrequent complication and may occur in the absence of parotitis. There is nothing to distinguish it from other types of encephalitis. Multiple neuritis, transverse myelitis, subarachnoid hemorrhage and unilateral deafness are all uncommon manifestations or complications of mumps, and even pericarditis has been attributed to it. There are also statements that the thyroid, and thymus may be involved, although I have never seen such cases.

(These statements are based more on data gathered from the literature, rather than from experience. Ed.)

Comment on Meningitis

By FRANK C. NEFF, M.D.

*Department of Pediatrics, The School of
Medicine, Kansas City, Kansas*

Mumps probably is sometimes seen as a benign lymphocytic meningitis and should be thought of when such a case occurs in a family where the other children are having the mumps.

Variety of Symptoms

By C. ANDERSON ALDRICH, M.D.

*Director Rochester Child Health Project
Mayo Clinic, Rochester, Minnesota*

As far as I know the only definite signs of mumps are bilateral parotitis, Stenson's duct sign and the evidence of communicability.

Mumps is probably the most bizarre communicable disease from the standpoint of its symptoms, as many glands may be involved with or without the

parotitis and because the meningeal signs of mumps notoriously occur before the parotid swelling. I have seen mumps with inflammation of the pancreas, submaxillary glands, lacrimal glands or even the thyroid manifesting themselves before or without the parotitis. All of this makes the diagnosis quite tricky.

Hatchcock's Sign

By JEAN V. COOKE, M.D.

*Dept. of Pediatrics, Washington
University, Saint Louis, Mo.*

Hatchcock's sign is thought to be of some value and is present even before the parotid swelling is notable. This consists of tenderness just beyond the angle of the jaw. In running the fingers toward the angle under the mandible, if the parotid gland is at all involved, the patient winces with pain.

(The original notation about this sign was by M. J. Radin, who published a report on the mumps epidemic at Camp Wheeler, Oct. 1917 — Mar. 1918 in *Archives of Internal Medicine*, 22:354, 1918. Lt. Hatchcock thought the sign of value. Ed.)

Frontiers in Diagnosis

By EDWIN H. PLACE, M.D.

Boston City Hospital, Boston, Mass.

A non-purulent, non-bacterial, inflammation of these tissues (brain, testes, ovary, pancreas and so on) following an intimate mumps exposure within 2-3 weeks, is suggestive. The proof of the diagnosis is best made by showing a rise of antibodies during the illness. Dr. Enders uses an antigen from infected monkey salivary glands. Complement fixation is done in as early a stage as possible and repeated in from 2-3 or more weeks. Rise of antibodies is usually found within 10 days.

Treatment

By EDWARD B. SHAW

San Francisco

There are no specific measures for the treatment of mumps or its complications which can be highly recommended. Convalescent serum has some slight value in the prevention of the disease following exposure but in my opinion this is not dependable. It seems likely that convalescent serum has no effect in the therapy of the disease or its complications.

Uncomplicated parotitis is treated by bedrest and general measures. Mouth cleanliness is of some importance. Local measures, compresses, and so on are usually not helpful. Aspirin or aspirin

with codeine may be given for relief of pain.

Mumps meningitis is usually relieved symptomatically by a single spinal puncture following which all symptoms usually rapidly subside and late complications, with the possible exception of deafness, are not to be expected.

Oophoritis usually occasions no great amount of pain and is relieved by an ice bag to the abdomen and bedrest.

Orchitis necessitates bedrest, support of the involved testicle, the use of ice bags or cold compresses for pain and the use of aspirin or codeine-aspirin. If

there is a great deal of swelling and the testicle is very tense, simple incision, under an anesthetic, through the tunica albuginea will relieve the tension and is said to prevent pressure atrophy. Experience with this operation is not sufficient to recommend that it be done in every case and usually maximum swelling occurs so quickly that operation need only be considered at the very onset. Orchitis will occasionally produce sterility but, although orchitis occurs very frequently, it does not often cause sterility and in any event does not produce eunuchism.

Fig. 7

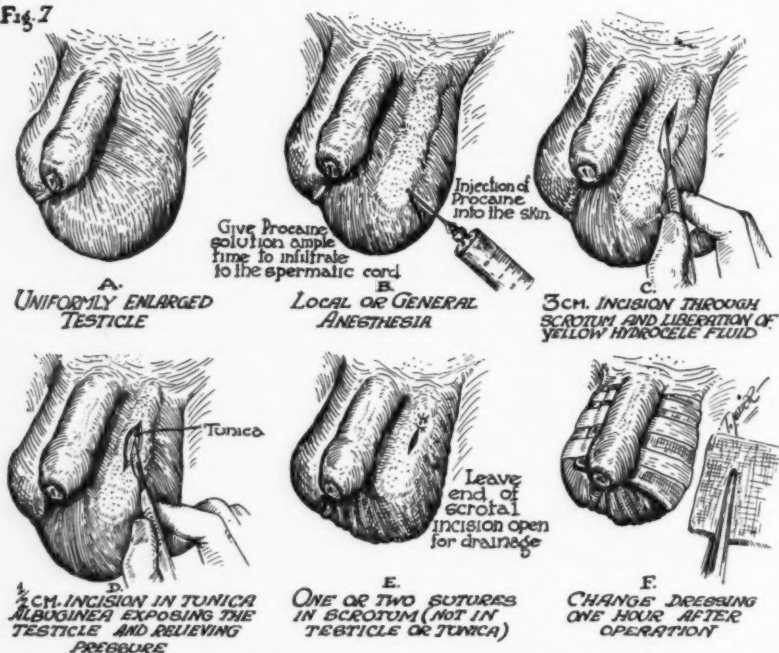


Fig. 7. Mumps orchitis, one of the most common complications of mumps, is traditionally not treated, except by suspension of the scrotum and rest in bed.

Conrad Wesselhoeft, M.D., Clinical Professor of Communicable Diseases, Harvard Medical School, and S. N. Vose, M.D., Associate Professor of Urology, Boston University Medical School, have developed a technic which relieves the edema of the testicle or epididymis. Pain, fever and delirium abate promptly. By incising the unyielding tunica albuginea of the testicle, the increasing pressure is relieved. Atrophy has not occurred in testicles which were operated upon early.

The sketches indicate the simple technic. Either procaine can be injected locally or nitrous oxide-oxygen can be administered. A short incision is made through the scrotum ("A small enough incision merely to expose the testicle" Dr. Wesselhoeft states in a letter written in June 1945; earlier he had employed a 3 cm. incision).

This incision may permit the escape of hydrocele fluid but does not relieve the increasing pressure inside the unyielding tunica which surrounds the testicle. A 0.5 cm. incision is made into the tunica albuginea, any bleeding vessels tied off, one or two sutures placed in the scrotal skin (not in the tunica or testicle) with one end of the scrotal incision left open for drainage. The dressing should be changed at the end of an hour, as "fluid tends to leak out." At this time, the marked tenderness of the testicle, fever and pain are usually decreased.

Editorial

Our 53rd Birthday

WITH this number, *CLINICAL MEDICINE*, begins its 53rd year of publication and you will find during the course of the year a new type of medical reporting, particularly the unsigned staff articles. Such articles as these are "hand hewn" for your use and a tremendous amount of work goes into their making, to get the most modern thinking of our large consultant staff into one practical article.

Most men are too busy these days to sit down and write a formal article, but they can and do answer specific questions in letter form. These comments, observations, and suggestions, received from the Consultant Staff (numbering close to 200) are then worked up, with textbook description and clinical data, special illustrations and a summary, into the staff article.

It is our rather ambitious purpose to make *C. M.* the foremost instrumentality in the country for the general practitioner in enabling him to take his proper place, to which he is so justly entitled, among the leaders of modern medical thought.

We want to make *CLINICAL MEDICINE* "not a name of a thing, but the mark of a service." Not only do we desire to publish the kind of a journal which will be most valuable and readable to you, but we are eager to help you with your professional problems in any way we can.

As the foundation of practical instruction lies in the publication of accurate and scientific reports of individual clinical experiences, we urge every reader to give us all the benefit of the things he has learned in his practice. If a formal article is not possible, your notes and comments may well be used in a staff article, and good teaching and clinical illustrative material is always in demand.

We believe that with your help, progress in scientific value and professional usefulness will be more rapid than ever, and that this year's value will be the best that *CLINICAL MEDICINE* has ever given you.

Influenza

Present day knowledge of influenza indicates that it is an acute, highly infectious disease, characterized clinically by sudden onset, fever, muscle aches, respiratory symptoms, prostration, and a tendency toward the development of pulmonary complications.

The etiological agent is considered to be a filterable virus of which there are several, or perhaps, a large number of strains. This agent is contained in the discharge from the nose and throat.

The incubation period is short and variable, from 24 hours to as long as 4 days. It is a typical contact disease, highly infective, so that it can be transmitted by very slight and transient contact between the infected person and the susceptible. Air-borne infection is probably the most common mode of transmission, but the virus may be transferred by inanimate objects and by hand to mouth. Eating utensils and food contaminated with the virus are important factors in its spread.

Influenza is probably transmissible throughout its clinical course, but infectiousness is greatest during the period of invasion and during the early stages of the disease. Sub-clinical and mildly symptomatic cases are potent sources of spread of the disease because patients are not isolated or segregated.

Epidemics

The disease tends to occur in pandemic cycles of primary and secondary waves and these as well as localized epidemics are characterized by explosive onset and a rapid spread. Dissemination in civil life follows the line of travel between centers of population and its rapidity parallels the speed of transportation over these lines. Epidemics tend to be short lived but the explosiveness and rapidity of spread produces a high incidence of cases in a given area over a minimum period of time.

Control measures are rendered ineffective by the speed with which the disease spreads. The primary rule of pre-

ventive medicine is to prevent, as much as possible, contact between persons. All methods of preventing crowding should be utilized.

Special attention should be given to the disinfection of eating utensils and dishes. Food handlers should be observed and prevented from following their occupation during the disease. In institutions group quarantines for a period of 2 weeks may be necessary. Theaters, libraries and other recreational facilities may be closed under extreme epidemic conditions.

Cases should be hospitalized promptly, not only to prevent the dissemination of the infection, but also to improve the prognosis of the individual case. Pneumonia, the most common and most important complication, is the usual cause of death in influenza epidemics. The prevention of influenza pneumonia depends on maintaining the patient's resistance. The patient should be put to bed promptly, kept warm and comfortable, and treated expectantly. — CHARLES D. MARPLE, CAPT. (M.C.)

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Happiness consists in the free exercise of one's abilities. Any restrictions, either of man or nature, cause unhappiness.— Philip Alger.

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"The Physician's Business"

How to do it books are common in medical and surgical technic. How to carry on a practice, where to locate, how to arrange and collect fees, best methods of working with other physicians, what subpoenas may be ignored, what to do about insurance, income tax and a hundred other business problems arise for which the average physician has had no preparation, and for which there is little printed matter to guide him.

George D. Wolf of New York Medical College has written a very practical manual on all the business aspects of practice, which would be of help to every clinician. The physician is not commercially minded who wishes to arrange the financial aspects of his work to his best advantage. It must be remembered that physicians are high on the sucker lists of most companies selling a little for a lot, that physicians usually save little despite fair sized incomes and that they are notorious for their lack of business knowledge.

**The Physician's Business: Practical and Economic Aspects of Medicine. Second Edition. J. P. Lippincott Co., Philadelphia. 1945. \$6.00.*

Educating Your Patient

(State Medicine)

One of the best pamphlets to send out with your bills, to leave on your waiting room table and to give to patients is a little one published by the National Physician's Committee, Chicago 2, Ill. It is an editorial reprinted from the *Saturday Evening Post* of Dec. 9, 1944, entitled "The Doctor Glares at State Medicine."

It is very fair to both sides, stating the physician's views and the opposing fact that the cost of overwhelming sickness should be provided for.

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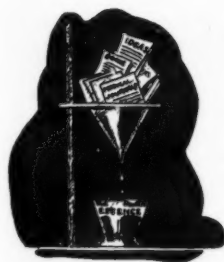
Virus Pneumonia

At the Methodist Hospital, we base our diagnosis upon several outstanding features in the case:

History: Symptoms of a coryza are present for several days together with chilly sensations, the patient usually continuing at work. Then fever appears with more chilliness but no definite chill; followed by headache, heaviness in the chest, throat irritation, and some general malaise. The cough is hard, dry and racking with little sputum. There is some soreness in the chest, but no definite pleural pain. Temperature, pulse and respiration are not markedly elevated; the temperature rarely exceeding 103°.

On physical examination, the signs are quite different from those of lobar pneumonia. Dullness on percussion may be observed or may be absent. Occasionally, tactile fremitus may be increased. The consistent telltale finding is of rales in showers and associated with inspiration. They are rarely heard over an entire lobe, some part of the lobe invariably escaping involvement in the inflammatory process. Sometimes, early in the course and generally by the third or fourth day, a small area of bronchial breathing will be identified. It is noticeable that these meager physical findings are not uniformly spread over the geographic area of a lobe.

About penicillin in therapy: We saw no reason to continue using it after several failures at the Methodist Hospital. At the Long Island College Hospital, there were six patients unaffected by this therapy. In as much as recovery is so uniform, there would seem to be no good reason for further exhibition of the drug.—FRANK BETHEL CROSS, M. D., Brooklyn, N. Y.



CLINICAL NOTES and ABSTRACTS

Reliable Signs of Heart Disease

In approaching the patient with the view of establishing a cardiac diagnosis, one must be aware of the reliable evidences of heart disease, the presence of any one of which means, of and by itself, the presence of a serious cardiac disorder. These findings are:

1. *Definite cardiac enlargement.* Undoubted enlargement to physical or x-ray examination definitely indicates a cardiac disturbance of importance. This finding must be carefully evaluated in pregnancy.
2. *Serious mechanisimal disturbances;* such as true pulsus alternans, heart block not due to digitalis, auricular flutter, and auricular fibrillation.
3. *Definite thrills* which are unmistakably cardiac. A slight vibration is insufficient.
4. *An unmistakable pericardial friction rub.*
5. *Diastolic murmurs.*
6. *Expansile pulsation of the liver.*
7. *Significant engorgement of the veins of the neck in the sitting position.* While this finding may be due to pressure of tumors, vena caval thrombosis, it is particularly significant if associated with enlargement of the liver, and particularly an expansile pulsation of the liver.
8. *Persistent arterial hypertension, or widespread arteriosclerosis of long duration.*
9. *Typical classical angina pectoris.* This finding may be based on history alone and must be evaluated in that light.
10. *Electrocardiographic evidences of heart disease.*

Above the age of forty, heart disease is frequently present in the absence of any of these findings. Below the age of

forty, serious heart disease is uncommon in the absence of one or more of these chief reliable signs. Chief causes of heart disease in the younger group in the absence of these signs are (1) acute rheumatic endocarditis and myocarditis, (2) at times, chronic rheumatic endocarditis, (3) bacterial endocarditis, and (4) diphtheria. Even in the absence of definite signs, a past history of any clear-cut picture of the rheumatic syndrome, such as typical polyarthrits or chorea, should raise to a high level the clinical suspicion of the disease. —*Bull. South Colo. Phys. & Surg.* April 1, 1945.

Sinusitis in Children

Causes: Poor diet, vitamin deficiency (vitamins A, C, and D,) allergic rhinitis, enlarged tonsils and adenoids, following such infections as colds, scarlet fever, influenza, pneumonia, measles, whooping cough.

| | |
|-----------|---|
| Age | Sinus involved. |
| Infancy | Ethmoid sinus developed at birth; most frequently involved. |
| 2-3 years | Maxillary, sphenoid. Maxillary fully developed at puberty; sphenoid at puberty. |
| 6 years | Frontal: fully developed at puberty. |

Symptoms: A persistent, unilateral or bilateral purulent nasal discharge (if foreign body in the nose can be ruled out) is diagnostic of sinusitis. Exacerbations are called "colds" by the parents.

The child may be underweight and malnourished; a history of anorexia, inattention and failure to do well in school may be obtained.

Examination: Red, swollen nasal mucosa is found. Discharge in the middle meatus signifies ethmoid or maxillary infection as the frontals are rarely in-

volved before six years. Discharge in superior meatus above the middle turbinate means a posterior ethmoiditis. Tenderness on pressure, or redness and inflammation over the sinus wall in contact with the skin, may be present. Transillumination and x-ray are of less value due to small size of sinuses.—R. L. PULLEN, M. D. in "Medical Diagnosis" (W. B. Saunders Co., Publishers).

Malaria: Newer Knowledge

Post-malarial Asthenia: Weakness following recurrent attacks of malaria is rarely due to the malaria, but rather to combat fatigue, amebiasis, hookworm and other tropical infections. Symptoms are: fatigability, irritability, weight loss, headache, backache, and disturbed sleep.

Malarial Headache: A mild to moderate frontal headache, bilateral in location, usually occurring on arising in the morning and improving after some hours or appearing after physical exertion, especially in the hot sun, and unrelieved by analgesic and sedative drugs, ergotamine tartrate, and amphetamine (benzedrine), may be considered a typical malarial headache. This occurred in patients who were not psychoneurotic previously. A 50 to 100 mg. tablet of nicotinic acid, administered after breakfast, relieved such headaches in two-thirds of patients. Some transient vasodilatation occurred 15 minutes after taking the nicotinic acid.—MEYER ZELIGS, M. D. in J.A.M.A., Nov. 17, 1945.

Dehydration in Health and Disease

In most of the common diseases met in general practice, dehydration may be encountered. Lack of water (underhydration or dehydration) is the rule; all physicians must consider its unsuspected occurrence in apparently healthy people but more so in every sick person. The amount of water needed is never constant but fluctuates, even in health, in varying degree, from day to day and hour to hour.

Signs of dehydration: Appetite for salt, reduced output of urine, constipation, dry tongue and mouth, quiet delirium, known low intake of fluids, lowered blood pressure. Extreme dehydration results in the Hippocratic facies.

The discovery and management of dehydration depends on commonsense, on preventive as well as curative treatment. In health the adult needs 4 pints daily; in sickness, 6 to 7 pints may be

needed, or more. The best bedside guide is the amount of urine excreted daily; this should normally amount to 50 fluid ounces per day. If the oral route fails, then slow rectal drip (proctoclysis, using a Murphy nozzle) should be employed or intravenous infusions in quantity though not in such excess as to court pulmonary edema or to embarrass the heart and vessels by over-filling.

The business of ordering a sufficiency of fluid is one that has been sadly neglected in the past, probably because the warning signs of dehydration have been overshadowed by essential features of the clinical picture. Dehydration is a symptom keeping company with many diseases, so that care has to be taken not to blame one for the other when both are to blame or to mistake the symptom for the disease.—S. WATSON-SMITH, M.D. in *Practitioner* (Eng.) July 1943. (Author's abstract).

Treatment of Fungus Infections

The acute dermatitis frequently observed and termed fungus infection should be treated like an infected second-degree burn and the fungus disregarded in this stage of its cyclic growth. The same sterile technic and drugs which are used in infected burns have a place at this time in the course of the disease.

The treatment is rest, hot compresses of boric acid in the daytime and at night 5 per cent sulfathiazole ointment or sterile petrolatum, repeated daily until all redness and weeping disappears. The symbiosis of the gram-positive cocci and fungi must be destroyed. If cultures show streptococci, a course of sulfathiazole, 15 grains thrice daily for 5 days, is necessary. If the patient shows allergic response to the sulfonamide drugs, calamine ointment with zinc oxide 10 per cent is used on the feet and sulfonamide orally discontinued. When the redness subsides the boric compresses are discontinued but the damaged skin is protected with the calamine ointment and 10 per cent zinc oxide for 2 weeks.

The chronic stage is the only time to break in upon the life cycle of the fungus. After washing the feet, dry them thoroughly and immerse them in a solution of 25 per cent ether in a 5 per cent salicylic acid solution of merthiolate, covering in depth only the toes. The solution dries in from 3 to 5 minutes and socks and shoes are put on. Desquamation follows in 7 days and continues for about 7 days. Apply once a month there-

after. No recrudescence is found after 12 months. One case has remained well after 26 years' previous duration.
—L. M. LORANCE, Lieutenant Commander (M.C.) U.S.N.R. *Naval Med. Bull.*, March, 1945.

Immunization Procedures:

Pertussis (Whooping Cough)

Probably the most satisfactory preparation for general use is Sauer's vaccine, containing fifteen billion organisms per cubic centimeter. This is administered in a total dosage of ninety billion organisms, or 6 cc., divided at two or three week intervals as follows.

| | |
|--------------------------|--------------|
| First injection 1.0 cc. | (15 billion) |
| Second injection 2.0 cc. | (30 billion) |
| Third injection 3.0 cc. | (45 billion) |

90 billion

Pertussis vaccination is, as a rule, the first immunization procedure to be completed, because whooping cough is most serious during the first few years of life. Immunity may not be complete until four months after potent antigen has been injected. Not until the fifth month of life do most infants possess the power to elaborate immunity from hypodermically injected antigen. Immunization, therefore, is best delayed until this age. A booster dose of 1 cc. should be given annually after the initial course.

Reactions: Local redness; swelling and tenderness occasionally; fussiness and fever in about one-fourth of the infants. A small dose of aspirin (one grain), given a few hours after the injection, prevents many of these reactions.

Prophylaxis, attenuation, and treatment: Human convalescent "hyperimmune" or rabbit sera have been recommended and appear to have real merit in prophylaxis after exposure to the disease. The serum is given intravenously or intramuscularly. Convalescent and hyperimmune sera apparently offer the best results in treatment of the active disease, though larger doses are necessary. Reactions with human serum preparations are unusual. Symptomatic care will be discussed.

A prescription such as the following has been found useful for alkalization:

| | |
|--------------------|--------|
| Sodium bicarbonate | 1½ oz. |
| Syrup vanilla | 1 oz. |
| Syrup Tolu | 3 oz. |
| Water q.s. | 8 oz. |

Sig: 1 tsp. every two or three hours.
—*Bull. South. Colo. Phys. & Surg. Mar.* 15, 1945.

Obstetrical Notes

Obstetrical Analgesia Drugs: The medications for obstetric analgesia, like all other drugs employed in the treatment of disease, are not actual components of body tissues and fluids, and have undesirable side effects in addition to those effects which we wish to produce.

Resuscitation of the Newborn: It is very important that a child breathe promptly after birth. Almost three-fourths of children with neurologic symptoms were apneic at birth. Such failure to breathe was due to birth trauma, to analgesic drugs, or both (Scheiber). Morphine and pantopon have a very serious effect on the infant's respiration. If nitrous oxide and oxygen anesthesia is given, at least 15 percent of the mixture should be oxygen.

Morphine During Labor: Morphine, pantopon and other opium derivatives should not be employed within 6 or 8 hours of delivery. They are very useful in prolonged primiparous first stage labors due either to primary or secondary uterine inertia or to a slowly dilating cervix.

Obstetrical Analgesia: All patients receiving obstetrical analgesia of any kind may become very restless and all should be under constant observation. Any drug that affects the cerebral cortex to the extent that the patient remembers little or nothing that has occurred will so obtund (dull) the inhibitions that the reflexes will have full play. Hence, when a painful impulse is sent up to the higher centers, a message will be sent back to move the affected area away, just as a person lightly asleep will move the foot when the sole is tickled. The patient will therefore move and squirm around; she may become quite restless and even fall off the bed if not closely watched. This effect is more marked with some drugs than others.

She may complain freely, even loudly of the uterine contraction pains, but in the intervals will usually sleep soundly.

Toxemia of Pregnancy: High blood pressure and albuminuria, with or without edema, are the signs of toxemia of pregnancy.

Hypertension in Pregnancy: When a pregnant patient with hypertension is seen for the first time in the last three months of pregnancy (third trimester of pregnancy), it is difficult to determine if the patient is a chronic hypertensive, unless she knows that her blood pres-

sure was elevated previous to the pregnancy. A true hypertensive patient will show elevated blood pressure readings following delivery. The blood pressure of the patient who suffered from pre-eclampsia will return to normal in about four months following delivery.

Stillbirths: A history of repeated premature stillbirths occurring after the middle of pregnancy is suggestive of chronic nephritis, especially if syphilis can be ruled out.

Chronic Barbiturate Poisoning

Patients who have been taking barbiturates for a considerable period present at the first glance an "organic" picture. They are ataxic and tremulous and often present some degree of mental confusion. It is important to recognize this condition as the symptoms call for sedative treatment, but the use of barbiturates is, of course contra-indicated. Such patients respond quickly to the administration of thiamin and insulin. If a hypnotic is required, paraldehyde is indicated, as it is in all toxic states. —E. JONES, M.D. in *The Med. Jour. of Australia*.

Psychosomatic Therapy

Nothing is as private as the emotional life of the patient. He will fence with the physician and try to mislead for the same reasons that prevent him from admitting the real facts to his consciousness. He may relate dreams that are camouflaged as the reason for his symptoms. The physician must gain the confidence of the patient. Once this has been established the task becomes easier and the resistance less. A thorough clinical and laboratory investigation should always precede the evaluation of the emotional status for two reasons:

1. The significance of symptoms must not be neglected.
2. When the established methods of investigations have failed to yield a satisfactory explanation, the physician's own assurance will be apparent to the patient; his analysis of the mechanism concerned will carry more weight and prepare the patient to accept the physician's advice.

If the physician feels that the emotional factors are too deep seated and too complicated, he should recommend that the patient have psychiatric help. The "brow beating" psychiatry of the past is not the method of choice. The patient must be referred to a psychiatrist with in-

sight into modern technics and keenly aware of the sensitivities resulting from emotional factors.

The great difficulty arises in convincing the patient of the necessity for this help, because he does not want to feel that there is something wrong with his mind. As experience increases, the physician will find that the mere suggestion creates a resentment and, if the issue is not forced the patient's own desire to seek this help at a later date prevails.

The art of medicine is not overtreating the patient applies here equally in not trying to persuade him to do something against his will. Once the physician is convinced of the rationale of this approach, there must be no retreat or the patient will have conquered the physician just as he has repressed or suppressed his own emotional factors.—S. PORRIS, M. D., in *J.A.M.A.*, Oct. 14, 1944.

Ascariasis in Children

Ascaris infestation is frequent in the children of the Panama Canal Zone. A survey of 125 cases in Gorgas Hospital, Ancon, in a 3 year period, disclosed that 77 had come from farms or lived in rural communities, and 21 had become infected before 18 months, 66 before 4 years.

Only 26 were brought in with symptoms later accounted for by the Ascaris infection; in the remaining children the presence of ascariasis was detected while they were in the hospital with other illnesses. The most frequent symptoms were vomiting, and passing of worms by bowel. Fever, anorexia, abdominal pain, diarrhea and malnutrition were fairly common. Only 14 cases presented eosinophilia. In 2 patients, infestation with the parasites led to complications and death.

Treatment: (1) oil of chenopodium, (2) tetrachloroethylene and (3) hexylresorcinol crystals. Hexylresorcinol proved to be the easiest to administer, the safest, and the most efficient.

The dose was 0.1 gm. per year of apparent age, with a maximum dose of 1 gm. A preliminary laxative of magnesium citrate was administered at noon on the day preceding the beginning of treatment, followed by a light evening meal. On the following morning breakfast was withheld, and the drug taken in one dose. Magnesium citrate was repeated 24 hours after treatment, to remove moribund and dead worms.

When the infestation was severe, an enema was given as well as the second

laxative. The capsules were swallowed whole or, with younger patients, inserted directly by the physician into the esophagus. One patient vomited shortly after the drug was administered, and severe chemical irritation of the mouth and lips resulted. No serious toxic symptoms were observed apart from infrequent vomiting.

Treatment of this type eliminates only the parasites actually present in the lumen of the gastrointestinal tract. Larvae in the circulation and lungs en route to the bowel are not affected. Therefore, stools of patients with migratory larvae must be examined at monthly intervals for at least 3 months thereafter. Successful treatment must also include prevention of reinfection. Sanitary disposal of feces, especially feces of small children, is mandatory. — N. H. EINHORN, et al in *Amer. J. Dis. Child.* April, 1943.



Blood Changes Following Burns

1. Early, adequate and repeated investigation of the circulating blood of burned patients is essential, in order that the systemic sequelae of burns may be detected and corrected.

2. Hemoconcentration in itself is not responsible for clinical shock and death in burns, but is an indication of reduction of blood volume through loss of plasma. It is, therefore, an indication for immediate replacement of blood volume by transfusion of blood derivatives.

Hemoconcentration is usually related to size and severity of burn, and length of time through which plasma loss has continued uncompensated, but this is not invariably true. Burns of face, hands, and perineum produce greater disturbances than similar burns elsewhere.

3. Red blood cell count and hemoglobin content of the blood increase with hemoconcentration. In some patients they decrease rapidly at a later stage. This is a hemolytic process, probably related to the absorption of products of bacterial infection of the burns.

4. Leucocytosis occurs as a normal response following burns. Leucocyte counts may be very high. Agranulocytosis occurs in some cases, but may be due to the sulfonamide group of drugs where these have been used in treatment.

5. Plasma protein concentration usually remains fairly normal during the phase of acute hemoconcentration. Later, plasma protein levels fall due to continued loss of plasma, and edema persists or recurs. Plasma protein levels may be restored by transfusion with plasma or serum.

6. Plasma Chlorides may be increased or decreased in association with burns. Such changes as occur appear to have little clinical significance.

7. Blood urea concentrations may be used as an indication of kidney function in burned patients.—R. A. GORDON, M.D., (Maj. Canad. Army) *Anesth. & Anal.*, April, 1945.

Angina Pectoris vs. Coronary Thrombosis

Coronary Thrombosis with myocardial infarction is an accident occurring chiefly in men, most commonly between fifty and sixty.

| Signs & Symptoms | Angina Pectoris | Coronary Thrombosis |
|--------------------|---------------------|------------------------------|
| Onset | During exertion | Usually during rest or sleep |
| Attitude | Immobile | Restive; may walk about |
| Site of pain | Sternum to arm | Sternum or lower |
| Duration | Minutes | Hours or days |
| Dyspnea | Absent | Usually severe |
| Vomiting | Rare | Common |
| Shock | Absent | Present |
| Sweating | Slight | Severe |
| Aspect | Normal | Ashen pallor |
| Pulse | Unchanged | Feeble; often rapid |
| Temperature | Unchanged | Subnormal; then febrile |
| Blood pressure | Unchanged or raised | Lowered |
| Heart failure | Absent | Often follows |
| Heart sounds | Unchanged | Gallop rhythm; friction rub |
| Leukocytosis | Absent | Present |
| Electrocardiogram | May be normal | Often diagnostic |
| Action of Nitrites | Often relieve | No relief |

—South. Colo. Bull. Phys., Mar. 7, 1945.

Treatment of Primary Dysmenorrhea

Women with primary dysmenorrhea have no consistent anatomic lesions or endocrine deficiencies. Primary dysmenorrhea is the result of a nulliparous cervix and ovulation, which result in uterine distention and stimulation of uterine contractions of large enough amplitude to produce cramping pain.

Ovulation may be suppressed by estrogens (as stilbestrol) and menstruation rendered painless while the patient is taking medication, but this treatment may be productive of harm.

Simple medical therapy relieves mild cases; more severe pain may be treated by

- R 1. Acetylsalicylic acid gr. v
Codeine gr. ss
Ergotone gr. i
Atropine sulphate gr. 1/150

Make into one capsule. (This is most effective)

- R 2. Camphor monobromate gr. ss
Atropine sulphate gr. 1/150
Papaverine hydrochloride

- gr. ¼
Acetophenetidin gr. iiij
Acetylsalicylic acid gr. iiij

Make into one capsule.

Either capsule may be used alone, during the first day or two of menstruation.

Childbearing relieves partially or completely the pain of primary dysmenorrhea. Primary dysmenorrhea often decreases after the age of 30.—J. H. RANDALL, M.D. in *J.A.M.A.*, Nov. 20, 1943.

Rice Diet Therapy of Hypertensive Vascular Renal Disease

A rice diet has been reported in the literature as yielding improvement in seventy-three percent of cases of hypertensive vascular renal disease. This improvement was gauged only on such objective signs as a drop in blood pressure, a lowering of the nonprotein nitrogen in the blood, a decrease in the heart size, a healing of retinal vascular lesions and a change toward normal in electrocardiographic tracings.

The Diet: The diet is so monotonous that the patient must almost be hospitalized so as to control him. The protein in the diet is of vegetable origin.

Rice, sugar, fresh fruits of all types and fruit juices comprise the diet. Salt and syrups are not allowed. The diet furnishes 2,000 calories (460 Gm. carbohydrate, 15 to 25 Gm. of protein, 4 to 6

Gm. of fat, sodium .25 to .4 Gm. and chloride .1 to .15 Gm.

This is a high carbohydrate, low protein and low salt diet. (It has been believed that 30 to 50 Gm. of protein were needed by the adult. The average civilized man uses 2 to 4 times this amount.)

Supplements: Brewers yeast, thiamine (vitamin B1), ascorbic acid (vitamin C), vitamins A and D and ferrous sulphate 1 Gm. (15 gr.) are also given daily. After 4 months, non-leguminous vegetables are added, followed by 1 egg weekly.

Conclusion: In very few of the patients we have studied, has the diet resulted in a definite improvement (lowering of blood pressure). One nephrotic patient showed a diuresis. CAPTS. H. A. BRADFORD and H. E. MILLER, M.C. at War Time Graduate Meeting, Fitzsimmons Gen. Hosp., Denver, Colo., March 1945.



Fixation of Fractures: Analysis External Techniques

Because of a difference of opinion with respect to the technic of fracture treatment, which is now going through an evolution in general and industrial surgery, it is wise that the industrial surgeon be familiar with a variety of technics in order that he may apply the one which will give the best results and minimize the amount of time involved, thus shortening the period of disability and consequent expense.

In doing so, however, the surgeon must not lose sight of the generally accepted principles formerly enunciated by Boehler as follows:

1. In every fracture, the displaced fragments of bone must be exactly reduced.

2. The reduced fragments must be fixed in good position uninterruptedly until they are joined together by bone.

3. During the necessary duration of fixation of the well-set fracture, as many as possible, or all, of the joints of the limb and of the whole body should be actively moved through the full range that can be done without pain, in order to prevent damage to the circulation, atrophy of the muscles and bones, and stiffness of the joints.

In our wide experience with various types of fractures and precision pinning, we have always emphasized that the favorite method is not always the one that is indicated in a given case—in other words, all technics should be studied.

Gratifying results have been obtained with the technique of skeletal pinning

and external fixation and at the same time, it has been possible to simplify the care of the soft tissue in compound injuries, eliminating the use of foreign material, such as is employed in internal fixation at the fracture site, which so often results in infection, interference with the blood supply, and damage to the surrounding tissue.

Based upon these experiences, it has been concluded that transfixion pins and external fixation offer very definite advantages in industrial surgery. These methods are invaluable in treatment of fractures of the extremities, associated with skull fractures and internal injuries, which so often happen in automobile accidents and also in industrial injuries. Precision pinning also assures a higher average of good results, and offers a practical approach for the treatment of compound fractures.—H. W. Wellmerling, M.D., Authors abstract based upon material presented in *INDUSTRIAL MEDICINE*, April, 1944.

Laxatives

Explain the cathartic action of (A) Castor Oil, (B) Physostigmine Salicylate, and (C) Liquid Petrolatum.

(A) Castor Oil is Hydrolyzed by intestinal lipases to ricinoleic acid. The local irritant action of the latter stimulates the motor activity of the small intestine. The fluidity of stools is said to be due not to hindrance of absorption, but to rapid propulsion of the contents of the intestine.

(B) Physostigmine Salicylate (eserine) functions as a laxative because it increases intestinal tone and motility. It stimulates both the involuntary muscle fiber of the intestines, and also the intestinal secretions.

(C) Liquid Petrolatum achieves its cathartic action by lubricating the intestinal contents and preventing the excessive dehydration. There is no demonstrable clinical difference between proprietary and official oils. (Eserine is usually given hypodermically in doses of 1/30 gr. to increase peristalsis, especially in postoperative distention.)

For constipation:

B Podophyllini0.30 Gm. (gr. v)
Extract Physostigmatis
.....0.50 Gm. (gr. viij)
Extract glycyrrhizaeq.s.
M. fac. pilulas no. 30
Sig.: One pill twice daily.

—Davison in "Synopsis of Materia Medica" (Mosby Co.)

Fibrositis

A diagnosis of fibrositis is apt to form the physician's escape from reality. This diagnosis should never be made unless involuntary muscle spasm can be demonstrated, or definite tender nodules or thickenings can be felt, and this will rarely be the case. If this rule is observed, it may sometimes be difficult to find a diagnosis, but want of a diagnosis is better than placing a false label on the cases.—T. G. HEATON, M. D., in *Med. World* (Lond.) April 13, 1945.

Cancer of the Cervix

There are two symptoms which are highly suggestive of cervical carcinoma: (1) An unusual vaginal discharge of recent origin, and (2) Intermenstrual bleeding. The most frequent symptom which attracts the patient's attention is unexpected vaginal bleeding. Rarely, this is an increased menstrual flow. Sooner or later it occurs between the periods. Pain is always a late symptom. Early diagnosis can only be made by the objective findings. The earliest lesion may take the form of a small hard nodule. Later this may ulcerate, leaving a hard excavated ulcer with superadded secondary infection.—J. C. PAYMASTER, M.D. in *Med. World*, London, June 15, 1944.

Is Fever Beneficial?

It is often said that fever assists the host in combating infection. There is no question of the value of fever in neurosyphilis and in certain other types of infection, such as those due to the gonococcus. On theoretical grounds we know that the elevated temperature accelerates antibody formation, and that the increased viscosity of the blood plasma which accompanies fever enhances its agglutinating action. Moreover, some bacteria and spirilla suffer attenuation of virulence at febrile temperatures. Certainly it is true that failure to develop fever in response to a severe infection usually signifies a grave prognosis. On the other hand, it is probably fair to say that the presence or absence of fever has little influence on the course of many infectious diseases.

The fever which accompanies noninfectious conditions does not appear to serve any useful purpose, and may at times be harmful. In malignant disease, for instance, high temperature only accelerates weight loss and causes malaise. The fever which follows myo-

cardial infarction increases the metabolic rate, thereby placing an extra load on the weakened myocardium. The hyperpyrexia of heat stroke may cause death. It appears, therefore, that fever is decidedly beneficial in certain infections and is possibly beneficial in some others, but that in noninfectious diseases it may actually be harmful.—P. B. BEESON. Clinics, April, 1944.

Flatulence

More commonly than is suspected, flatulence is due to the eating of some food or foods to which the patient is allergically sensitive. The result is often abdominal distension and crampy pain. The important point to remember is that some of the worst gas producers are not the notoriously indigestible foods, but those, such as milk and eggs, which have a great reputation in the sick room. Actually, *any food may cause flatulence*. Sometimes it can be discovered by the patient if he keeps a record of unusual foods eaten a few hours before the flatulence occurs. Occasionally some beverage will irritate a sensitive colon and produce flatulence.—Med. World, (Lond.) Sept. 17, 1943.

Neck Infections of Dental Origin

The death rate of neck infections has been much lowered in the last ten years, due to better surgical technic and improved diagnoses.

The fascial planes must be known before operating. Pus pockets are easy to find and drain if the fascial planes are understood.

Fascia binds structures together into a series of potential compartments. When an abscess forms, it spreads the fascia apart and forms a true compartment because the fascia limits the spread of infection.

The most important fascial spaces are the submental, the submaxillary and the parapharyngeal. *An abscess is one of these spaces or a combination of spaces is associated with a definite clinical picture.* Submaxillary space infection, alone or in combination, is the most common, being found in 2/3 of our series of cases.

Bacteria

Fusiform bacilli and Vincents spirochete are most commonly found, often with streptococci, thus explaining the rationale of 1 or more injections of

neosarsphenamine plus sulfadiazine in the treatment of such infections. The combination gives the best results.

Severe cellulitis has been treated with Penicillin; rapid subsidence of fever and localization of infection occurs.

Trismus

Trismus is diagnostic of a parapharyngeal space infection. It is frequently due to an irritative spasm of the pterygoid muscle.

Secondary Complications

1. Edema of the larynx may occur at any time. If a tracheotomy may be necessary, plan for it rather than performing an emergency tracheotomy.

2. Osteomyelitis of the mandible may occur. This complication did not occur in our series, even when the mandible was exposed at operation.

Treatment

1. The first step in treatment should be the correction of dehydration.

2. Neosarsphenamine, 0.3 to 0.5 Grm., is given intravenously.

3. Sulfadiazine is given if streptococci are found in the lesion or pus.

4. Surgical treatment: For the patient with trismus, procaine solution infiltrated both superficially and deep should be used as the anesthetic of choice.

A knot should be tied in the deep end of the drain so that it will not slip out prematurely.

Causes

Extraction of teeth furnishes most cases of neck infections. In one-third of our cases, no cause could be found.—ARTHUR M. ALDEN, M. D., from notes taken at the Southern Medical Assoc.

Tropical Diseases Will Not Increase

The final attack on malaria has gained marked headway during the war. The job of eradicating malaria—and hence preventing its reintroduction by returning veterans—no longer can be thought of as the vast and costly undertaking we feared. The use of DDT insures the control of malaria and other insect borne diseases by means of speedier and relatively inexpensive operations.

If reasonable safeguards are maintained, other exotic diseases will not be established in the United States. Two years of intensive research in the National Institute of Health have provided much basic knowledge upon the potential dangers of all the exotic diseases which have beset the American fighting forces abroad. It is now possible to

draw plans for dealing promptly with new infections in those environments favorable to their establishment.—THOMAS PARRAN, M. D. in *Am. J. Pub. Health*, Oct. 1945.

Instructions to the New Mother

The "going-home talk" should be always fortified by specific written instructions. What and how much the physician tells the mother depends on his own experience and his estimate of the mother's. A great deal of this work can be accomplished through the medium of classes and demonstrations as commonly carried out by graduate nurses for groups of indigent mothers in charity hospitals.

Altogether too often, private patients are denied the advantage of adequate training in baby care, with the result that their babies' welfare becomes pretty much a matter of luck, good or bad guessing, and neighborly advice, because the doctor is "too busy" to take time to explain what he, the mother, and the infant should expect of each other.

All the following major points should be carefully explained. With a little practice, the physician can condense it all into a ten or fifteen minute discussion. He should ask the mother to jot down notes and ask questions freely. Many physicians find it helpful to ask the mothers to prepare for this talk by reading assignments from baby books or pamphlets of which he approves, but he should be carefully prepared in this assignment himself! Instructions should include such details as the following:

- (1) Feeding.
 - a. Times
 - b. Type of feeding
 1. Care of the breasts
 - d. Necessary care in preparation of formulas.
- (2) Isolation and minimal handling.
 - a. Measures designed to prevent infection.
 - b. Separate room.
 - c. Adequate ventilation.
 - d. Proper temperature.
 - e. Minimal clothing consistent with the temperature of the room and climate.
 - f. Proper bathing.
 - g. Change and proper care of diapers.

It is most important to impress upon the mother the necessity for following your instructions.—*South Colo. Bull. Phys.* Mar. 1, 1945

Hook Worms and Abdominal Pain

All cases of chronic pain in the upper abdomen, especially with an increase of the eosinophile count should be examined by a competent technician for hook worm ova. Duodenal ulcer and hook worm disease are sometimes associated in the same patient. Each condition will often show a small amount of blood in the stools. The thymol treatment is the least toxic and the most effective of all those used.

Thymol is the best treatment: Epsom salts should be given the night before, followed by 30 grains of thymol the next A. M.; two hours later this should be followed by 30 grains more, and two hours later another dose of salts should be given. The thymol can be given in a little whisky, orange juice, or grape fruit juice. Routinely we repeat this for three treatments.—T. R. LITTLEJOHN, M.D., in *Va. Med. Mon.*, Sept. 1943.

Treatment of Itching Ears

Itching of the ears is commonly caused by eczema of the dry or wet variety. This ointment may relieve the pruritus and improve the skin of the canal:

R Tincture benzoin compound,
Zinc oxide aa 6 cc. (dr. lss)
Petrolatum ad 30 gm. (xi)

Dispense box of sterile cotton-tipped toothpicks.

Sig.: Apply to itching ears 4 times daily.

Fungus infections may simulate weeping eczema or thin cerumen. The patient may think that he has a chronically draining ear. Diagnosis: Laboratory examination of discharge; characteristic odor of aural secretion, color of discharge (*Aspergillus niger* produces a black discharge, *Aspergillus flavus* a deep orange, etc.). Use this solution:

R Salicylic acid 0.65 gm. (gr. x)
70% alcohol ad 30.0 cc. (xi)

Sig. Eight drops in ear four times daily.

In both eczema and fungous infections, the following ointment may be effective:

R Phenol 0.33 gm. (gr. v)
White wax 0.33 gm. (gr. v)
Salicylic acid 0.65 gm. (gr. x)
Ammoniated merc'y 1.0 gm. (gr. xv)
Petrolatum ad 30.0 gm. (dr. i)

Sig.: Apply to ear canal four times daily with sterile cotton tipped toothpicks. (This ointment is "strong", and is used cautiously at first).—F. L. WELIE, M.D. in *Med. Clin. N. Am.*, Sept. 1944.

Weakness and Fatigue

Thorough examination of 300 patients complaining of weakness and fatigue revealed physical disorders in 20 per cent and nervous conditions in 80 per cent.

One-half of the physical causes were ascertained by history and examination. Laboratory tests and x-rays were needed to reveal hidden disease or confirm an otherwise uncertain diagnosis.

Causes

1. Nervous exhaustion 63%
2. Neurasthenia; anxiety neurosis 15
3. Narcolepsy, myasthenia gravis, epilepsy (psycho motor) 5
4. Chronic Infections: Respiratory (tuberculous and non-tuberculous); urinary; syphilitic 4
5. Diabetes, myxedema 4
6. Heart Disease 2
7. Mental Depression 2
8. Anemias of all types 1.7
9. Nephritis 1
10. Vitamin Deficiency, lung tumor, Hodgkin's 1

Diagnostic Points

Nervous weakness is characterized by:

1. *Morning weakness*, wearing off during the day; 2. Variability from day to day without change in activity; 3. Immediate benefit from slow acting medication (thyroid, vitamins, liver extract, iron, digitalis); 4. Immediate relapse on omission of customary treatment with these drugs.

Many of these patients have had lifelong ill health, they cry and blush readily and their complaints persist over the years without physical disorder to account for them.—F. N. ALLAN, M.D., (Lahey Clinic, Boston) in *J.A.M.A.*, April 14, 1945.

Penicillin in Pediatrics

In a series of seventeen cases, three possible toxic effects were noted:

1. Thrombophlebitis after 48 hours of continuous intravenous drip administration.

2. Irritative diarrhea, especially in infants receiving the drug parenterally. (This diarrhea was resistant to treatment, but subsided when the penicillin therapy was discontinued.)

3. Transient azotaemia, which was probably due to the toxic effects of the injection itself. None of the children complained of headache, muscular cramps or urticaria. In no case was eosinophilia any more than mild.—Dr. E. K. TURNER, in *The Med. Jour. of Australia*, Aug. 26, 1944.

Immunization Procedures: Measles

Active immunity: In experimental studies only.

Passive immunity: Convalescent human serum, immune globulin preparations from placental extracts, or whole blood, have been studied during the past few years. A consensus follows:

For complete protection

1. Convalescent serum injected intramuscularly within four or five days after exposure, 5 cc. for infants and children under five years; add 1 cc. for each year thereafter.
2. Immune globulin from placental extract, for infants 2 cc. intramuscularly and for children 4 cc., in divided doses two days apart. Reactions, usually only local, are frequently encountered with this substance. Protection is probably less satisfactory than with use of convalescent serum.

Attenuation (modification)

In many instances, it is desirable to have a mild attack of measles, as this probably gives a lasting immunity.

1. Convalescent serum, one-half the dose advised for complete protection, given on first to the fifth day of exposure or full dose on the sixth or seventh day. Serum given later than eight days after exposure is not as likely to be effective in modifying the disease, though results are difficult to evaluate.
2. Immune globulin from placental extract (same as for protection), given on the sixth or seventh day after exposure.
3. Whole blood, preferably taken from either parent who has had measles, 10 cc. for infants and small children, 20 cc. for older children, injected intramuscularly before the fifth or sixth day after exposure.

Dosage of prophylactic agents given intramuscularly: (Double the doses given for a 5-year-old may be used for a child of 10).

| | Convalescent Serum or Placental Globulin | Pooled Adult Serum |
|--|--|--------------------|
| For Complete Protection (Day after exposure) | | |
| 1-4 yrs. old | 5 cc. | 15 cc. |
| 5-6 yrs. old | 6 cc. | 25 cc. |
| 7 yrs. old | 7 cc. | 35 cc. |

| | Convalescent Serum or Placental Globulin | Pooled Adult Serum |
|---|--|--------------------|
| For Modification (Day after exposure) | | |
| 1-4 yrs. old | 2 cc. | 10 cc. |
| 5-6 yrs. old | 3 cc. | 15 cc. |
| 7 yrs. old | 4 cc. | 20 cc. |

—Bull. South. Colo. Phys. & Surg., April 1, 1945.



DIAGNOSTIC POINTERS

Cough in Bronchogenic Cancer of Lung

The most frequent symptom of bronchogenic cancer of the lung is cough, at first usually non-productive and later accompanied by expectoration. The sputum is scanty and mucoid at first, and later becomes profuse and mucopurulent. O. T. CLAGGETT, M.D., in *Med. Clin. No. Am.*, Aug., 1944

Pyelitis Caused by Constipation

Recurring attacks of pyelitis may be caused by constipation. The correction of the constipation puts an end to the attacks of pyelitis.—H. L. KRETSCHMER, M.D., in *Rocky Mountain Medical Journal*, January, 1945

Adrenalin for Abdominal Pain

Severe abdominal pain and vomiting may be due to allergic reactions to food. Any group of symptoms that cannot be fitted into a definite organic syndrome should be suspected of being allergic in nature. An injection of adrenalin may save some patients with abdominal pain from an operation.—LOUIS PELNER, M.A., in *Amer. J. Digest. Dis.*, Jan., 1945

Occipital Pain

Occipital pain is frequently a symptom of latent squint (Heterophoria).—JOHN MAUDE, M.D., in *Trans. Ophthal. Soc. Australia*, Vol. III, 1944.

Nodules in Rectum

Small nodules below the surface of normal or normal appearing rectal mucosa may be due to malignant growth (8 per cent), benign tumor (10 per cent), inflammatory lesions (22 per cent) or as a result of injection treatment (60 per cent) for hemorrhoids, which may have been performed as long as 20 years previously.—L. A. BUIE, M.D. in *Med. Clin. No. Am.*, Aug. 1944.

Uncomplicated Gastric Ulcer

With few exceptions the uncomplicated benign gastric ulcer, if not of too long standing, will heal, leaving no symptoms or signs of its presence. Occasionally the niche may persist in whole or in part, even though complete healing has occurred, demonstrated at operation. Malignant ulcerating lesions almost invariably remain unchanged or increase in size during treatment.—G. B. EUSTERMAN, Rochester, in *Wis. Med. J.*, Nov., 1944

Shoulder Pain from Lung Tumor

Pancoast's tumor, or superior sulcus tumor, is a primary bronchogenic (arising from the bronchus) carcinoma that originates in the apical bronchi; its symptoms are due to its location. The first symptom: Tip of shoulder pain and pain about the shoulder girdle, which then extends down the arm to the fingers, followed by weakness of the interosseal muscles. Horner's syndrome (ptosis of eyelid, sinking in of eye) may occur on the same side of the body. Diagnosis is made by the x-ray.—G. V. BRINDLEY, M.D., in *Med. Clin. No. Am.*, Aug., 1944

Toxemia of Pregnancy

(1) Weight gain of more than one pound a week and (2) progressive mild hypertension (140/90) are important early signs of toxemia. (3) Albuminuria may precede, but usually follows, the slight edema (shown by weight gain) and elevated blood pressure.—NORMAN MILLER M.D., in *Journal Iowa and Southern Medical Society*, November, 1944.

Coronary Thrombosis and Diabetes

The patient with coronary thrombosis, if studied repeatedly, may be found to have elevated blood sugars and abnormal blood sugar curves indicative of diabetes.—E. GOLDBERGER, M.D., in *N.Y.S.J.M.*, Feb. 15, 1945.

Purulent Pericarditis

Purulent pericarditis may exist without causing many or severe symptoms. Never neglect an examination of the cardiac area, therefore, in cases of suspected sepsis.—*South Med. & Surg.*, Feb. 1945.

Symptoms of Impending Cerebral Hemorrhage

1. Severe occipital or nuchal headaches, 2. True vertigo or dizziness (the world seemed to revolve about the patient), 3. Motor or sensory neurologic disturbances (numbness, tingling, convulsive seizures, temporary hemiplegia, double vision, muscle weakness), 4. Retinal hemorrhages in the absence of papilledema or exudates and 5. Recurrent nose bleeds may be premonitory signs and symptoms of cerebral hemorrhage. If 4 out of 5 of these manifestations, are present in persons with essential hypertension, death from cerebral hemorrhage may occur within an average period of 2 years.—I. H. PAGE, M. D., in *J.A.M.A.*, Feb. 15, 1945

Vomiting

Vomiting in a person who never vomits usually means organic disease, but in nervous people it often is induced by tickling the palate.

Inflamed Lymphatic Gland

A tender, painful swelling just at or beyond the upper, outer border of the breast, and near the edge of the pectoralis major, is usually an inflamed lymphatic gland. In its presence, it is well to look for some skin infection about the breast line.

In the treatment of a breast abscess, the size of the incision is not as important as its location and direction. A small incision and the proper employment of Bier's breast cup will obtain gratifying results. If a breast infection fails to heal within a reasonable time after appropriate incision and dressings, think of local tuberculosis.—*South Med. & Surg.*, Feb., 1945.

Belching

Belching which gives comfort is not complained of, but air swallowers make a big story to call attention to their habit.

Vomiting and Fever With Appendicitis

Vomiting is a relatively late symptom of appendicitis, is never severe and may never appear. Perforation may occur without vomiting.

There is no significant fever, or none at all, in early appendicitis. A high fever is often explained by a urinary infection.—W. H. COLE, M.D., in *Miss. Valley Medical Journal*, January, 1945

Repeated Stillbirths or Abortions

A history of repeated stillbirths, abortions or miscarriages should arouse a suspicion that the mother is Rh negative and the father Rh positive. Blood serum tests should be performed.—T. S. SELDON, M.D., in *Med. Clin. N. Am.*, Aug., 1944

Bitter Taste in the Mouth

A bitter taste in the mouth is a sign of a nervous individual but a salty taste (without blood) means fatigue.

Cirrhosis vs. Pernicious Anemia

Any liver disturbance may express itself in the form of anemia, or in quantitative alterations of blood components. The blood picture may resemble pernicious anemia, and improvement may follow liver extract therapy. Free hydrochloric acid is present in the stomach, however.

Symptoms: Dizziness, weakness, tingling and numbness of legs and a gait resembling the tabetic.

Secondary anemia is a common accompaniment of hepatic cirrhosis—N. W. CHAIKIN, M.D., in *Am. J. Dig. Dis.*, February, 1945.

Diarrheas

Diarrheas which last for years are harmless and are due to intestinal hurry, the colon not having time to absorb much water from the food mass.

Stricture of Urethra

A malignancy of the urethra must be suspected in any stricture, irrespective of its apparent etiology, which does not respond to dilatation and particularly if repeated dilatations are accompanied with profuse urethral bleeding. Such an individual is entitled to a careful diagnostic study by a competent urologist.—*Am. Jour. Surg.*, March, 1945.

Ulcer of the Stomach

Do not be hasty in making a diagnosis of intercostal neuralgia. With the exception of pulmonary and pleural conditions, ulcer of the stomach stimulates intercostal neuralgia more frequently than any other lesion.—*South. Med. & Surg.*, Feb., 1945.

Weight Loss

The terminal stage of cardio-vascular-renal disease without edema shows as rapid weight loss as cancer.



THUMBNAIL

THERAPEUTICS

Penicillin Failure

• Two common causes for failure of penicillin in severe staphylococcal infections are (1) use of inadequate doses and (2) the persistence of foci of infection, such as endocarditis, thrombophlebitis of the large veins of the legs and avascular infected tissues which prevent the penicillin from reaching the bacteria.

200,000 units is the minimum daily dose for patients with severe staphylococcal infections. Foci should be removed surgically. The combination of sulfadiazine or sulfathiazole with penicillin may be more effective therapy than penicillin alone as some strains of coagulase positive staphylococci may show a resistance to penicillin (by laboratory tests, *in vitro*) but pronounced sensitivity to these sulfonamides.—WESLEY SPINK, M.D., in *J.A.M.A.*, June 23, 1945.

Traumatic Injuries of the Rectum

• Traumatic injuries of the rectum should never be sutured, or the sutures will slough out and a fistula develop. Enough healthy tissue should be removed so that the wound is wide open (saucerized) to the bottom, and granulation tissue can fill in from the bottom.—PAUL C. BLAISDELL, M.D., in *J.A.M.A.*, June 23, 1945.

Vitamin B and Liver for Celiac Disease

• Intramuscular injections of vitamin B complex and injections of liver extract in cases of idiopathic celiac disease and celiac syndrome in children resulted in satisfactory weight and height gain, and improvement in general health. Treatment must be continued for months. After a few weeks, the diet can be increased to a full, normally balanced diet.—D. PATERSON, M.D., in *Arch. Dis. Child.*, Sept. 1944.

Vitamin C in Hay Fever

• Vitamin C has not proven effective in the relief of hay fever.—*J.A.M.A.*, June 23, 1945.

Rectal Aminophylline for Asthma

• Rectal instillation of aminophylline can be used by a nurse or by the patient himself. Preferably the patient should be reclining for 1 hour after the injection. Powders of 0.5, 0.6 or 0.7 Gm. are dissolved in tap water (20 cc.) at the time of injection, and aspirated into an ordinary 20 cc. glass syringe. A well lubricated small catheter (No. 12 French) is inserted 3 inches, a glass connecting tube and extra rubber tubing connected to the syringe and catheter and the aminophylline injected through the catheter. If the patient becomes resistant to this drug, use colonic ether or helium-oxygen inhalations.—A. L. BARACH, M.D., in *J.A.M.A.*, June 23, 1945.

Uterine Tetany

• The tetanic uterus (uterus in spasm due to use of pituitary extract, neostigmine, pitocin, ergonovin, quinine or during labor, such as Bandl's contraction ring) relaxes within 60 seconds after magnesium sulfate or gluconate is injected intravenously.—A. R. ABRABANEL, M.D., in *J.A.M.A.*, June 23, 1945.

Vitamin C for Vaginal Ulcer

• Patients with acute ulcers of the vagina were given 300-500 mg. ascorbic acid daily, and the ulceration healed rapidly. No other therapy was employed.—M. K. LAWLER, M.D., in *Brit. M. J.*, Feb. 19, 1944.

Constipation in Babies

• Chronic constipation in babies may be due to a tight anal ring. Dilatation with the little finger at four day intervals is first carried out, then the index finger is used.—W. HILL McCASLAN, M.D., in *J. M. A. Alabama*, Dec. 1943.

Iron Medication Skin Rash

• A skin eruption is a common manifestation of intolerance to iron medication. These patients should receive whole liver, well cooked meat, molasses, eggs, green vegetables and other food containing food iron. If hypochlorhydria is present, an ample amount of hydrochloric acid should be given during meals.—*J.A.M.A.*, June 23, 1945.

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• Meat and fish stimulate gastric secretion most, bread is next and milk stimulates least of all. Addition of water to a meal raises gastric secretion. Vegetables and vegetable soups are good secretagogues. Cocoa is most stimulating to acidity, coffee less and tea least. Of breakfast foods, those provoke most secretion that contain most roast products. Toasted bread is more stimulating than fresh bread. Salivary digestion hydrolyzes starch and permits pepsin to act upon proteins. Bolting (rapid eating) of food or depression of salivary secretion in the aged may thus interfere with gastric digestion of proteins.—H. NECHELES in *Portis "Diseases of the Digestive System."* (Lea & Febiger, Publishers.)

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This is an elaboration of the sort of printed instructions which some teaching hospitals provide their interns and students beginning clinical clerkships. For those hospitals which do not furnish such an outline, this volume should serve the same general purpose as a handbook of standard, accepted procedure. The methods described are orthodox, in line with the best trends of modern practice and thoroughly up-to-date.

The subjects which figure most in this condensation are physical diagnosis, clinical laboratory methods, emergency surgery, and drug therapy. There are, however, contributions setting forth some of the high points of all the usual clinical specialties. It gives good evidence of careful collaborative efforts by numerous members of a University hospital staff.

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MANUAL OF CLINICAL MYCOLOGY

MANUAL OF CLINICAL MYCOLOGY. By *Norman F. Conant, Ph.D., Asst. Professor Bacteriology, Donald Stover Martin, M.D., Associate Professor Bacteriology and Associate in Medicine, David T. Smith, M.D., Professor of Bacteriology and Associate Professor of Medicine, Roger Denio Baker, M.D., Associate Professor of Pathology, and Jasper L. Callaway, M.D., In Charge of Dermatology and Syphilology, all of Duke University School of Medicine.*—W. B. Saunders Company, 1944. \$3.50.

Fungus diseases are of interest to every armed service physician, especially in the tropics, and are becoming more and more important to the civilian physician, as returning veterans with actinomycosis, dermatomycosis, blastomycosis and other mycotic diseases are seen.

This is another of the invaluable series of handbooks published by Saunders, which are sponsored by the Division of Medical Sciences, National Research Council. Like the others, it is brief, filled with information and teaching illustrations.

GUIDING THE NORMAL CHILD

Bowley

GUIDING THE NORMAL CHILD. A Guide for Parents, Teachers, Students, and Others. By *Agatha H. Bowley, Ph.D. With a Foreword by D. R. MacCalman, M.D.*—Philosophical Library, 1943. \$3.00.

For mental health emotional development must go hand in hand with both physical and intellectual growth. This axiom is not as fully understood as it might be; its neglect is responsible for most of the unhappiness, difficult behavior and other unusual emotional reactions displayed by children.

Here is an excellent presentation of the emotional aspect of growing up. Infancy, the pre-school period, the middle years of childhood, and adolescence, are all discussed in a simple and sane manner, with emphasis being

placed both on normal behavior as well as on difficulties and how to correct them. Examples of practical situations are used freely in establishing the points being made, and contribute to ease in following the logical development of the author's ideas. Selected bibliographic suggestions for further reading are placed at the end of each chapter. The book, as sold in this country, is reprinted from an English edition; one fascinating chapter discusses the reaction of children to the war, describing and giving advice on dozens of practical problems such as parental behavior during air-raids, the content of children's drawings and essays, and reactions to evacuation from cities.

This well-written volume is designed primarily as a text on child guidance for colleges and normal schools. But its contents may be read with great profit by parents and doctors as well as by teachers and students.—I. J. W.

LYMPHATICS, LYMPH, AND LYMPHOID TISSUE

Drinker & Yoffey

LYMPHATICS, LYMPH, AND LYMPHOID TISSUE: Their Physiological and Clinical Significance. By *Cecil Kent Drinker, M.D., D.Sc., Professor of Physiology, School of Public Health, Harvard University, and Joseph Mendel Yoffey, M.Sc., M.D., F.R.C.S. (Eng.), Senior Lecturer in Anatomy, University College of South Wales and Monmouthshire, Cardiff, Wales.*—Harvard University Press, Price \$4.00.

This monograph, written in collaboration by a physiologist and an anatomist, deals with the lymphatic system as a functioning part of the machinery of the body, in health and disease. The authors have both made important original contributions to the subject, but the entire field is reviewed here and brought into coherence. Such a book should be of particular interest to other investigators, of whom some may not accept all of its conclusions.

The average medical student at graduation has learned a good deal about the anatomy of the lymphatic apparatus, normal and pathological, but he is likely to be left with rather vague ideas about its functional significance. Clinical readers with such a background should find this book profitable and interesting. The final chapter of 35 pages is devoted entirely to clinical problems, and much of the remaining text deals with them more or less directly.—T. E. B.

BABCOCK'S SURGERY

PRINCIPLES AND PRACTICE OF SURGERY By *W. Wayne Babcock, M.D., F.A.C.S., Emeritus Professor of Surgery, Temple University, in collaboration with 37 Temple University Faculty Members.*—Lea & Febiger, 1944. \$12.00.

This one volume library on surgical diagnosis and technic is modern, beautifully illustrated, and wonderfully complete.

McNett's illustrations bring out points in diagnosis and details of therapy that are hard to understand otherwise.

The contributors are to be congratulated for the thoroughness of their survey. Every modern, proved advance, including the Rh factor, continuous spinal anesthesia, the treatment of wounds in civil and military activities, the new mechanical devices used in retaining fractures, and many more are considered.

The book is so well organized and so free from superfluous material, that both the student and the surgeon can learn quickly the which they wish to know.—R. L. G.

THREE CLINICAL LECTURES

McQuarrie

THE EXPERIMENTS OF NATURE AND OTHER ESSAYS. By Irvia McQuarrie, Ph.D., M.D., Department of Pediatrics, The Medical School, University of Minnesota, Minneapolis, Minnesota. Delivered at the University of Kansas School of Medicine, Lawrence, Kansas City.—University Extension Division, University of Kansas. 1944. Price, \$1.00.

The first essay derives its title from Osler's famous aphorism "As clinical observer, we study the experiments which nature makes upon our fellow creatures." By case reports of unusual metabolic disorders personally observed, along with references to pertinent literature, the author ably and inspiringly substantiates his thesis that the laboratory techniques and facilities widely available in general hospitals are sufficient to carry out appropriate studies on the strange disorders which occur spontaneously in the human subject, with profit to our understanding of both normal and pathological functioning of the body.

The second essay describes and explains the diversity of disorders of adrenal function encountered in children.

The final chapter summarizes interesting experiences with native diseases at Peiping Union Medical College.—J. J. W.

MEDICO-LEGAL BLOOD GROUP DETERMINATION

Harley

MEDICO-LEGAL BLOOD GROUP DETERMINATION. By David Harley, M.D., B.Sc., F.I.C. The Laboratories of the Inoculation Department St. Mary's Hospital, London. Grune & Stratton. 1944. Price \$3.50.

Blood groups have found practical application in legal medicine mainly in two fields—an affiliation cases and in the examination of blood stains. The book is divided into three sections—theory, technic and practice. The material is admirably presented.

Especially interesting to American readers should be the discussion of the legislation proposed in England regarding blood tests in maternity cases. However, when the war broke out, enactment of the proposed legislation was deferred. Members of the medical and legal professions interested in this phase of medico-legal work will find a most instructive and clear discussion of the situation. It is hoped that the text will serve to stimulate other states to recognize the medico-legal application of the blood groups.—E. W.

PERMEABILITY OF NATURAL MEMBRANES

Davison and Danielli

THE PERMEABILITY OF NATURAL MEMBRANES. By Hugh Davison, D.Sc., Associate Professor of Physiology, Dalhousie University, Canada, and James F. Danielli, D.Sc., A.I.C. Beit Memorial Research Fellow, and Fellow of St. John's College, Cambridge, England.—The Macmillan Company. 1945. \$4.75.

This monograph is a critical survey of work accomplished, and a clear statement of problems yet unsolved, in a fundamental field of physiology. The authors have assembled existing data concerning specific permeabilities of different membranes; microscopic and sub-

microscopic details of their structure; the kinetics of movement of water and solutes across them; the resulting differences of fluid composition and electrical potential on opposite sides; and changes of permeability brought about by narcotics and other agents. Relatively little is known of the mechanisms of transfer through such complex membranes as those lining the renal tubule and the intestine. More progress has been made with simple cell-membranes, and it is with these that the book mainly deals. Much of the work cited is recent, and the authors have made important contributions to it. The membrane of the red corpuscle appears to have been studied most intensively.

The book is admirably arranged and clearly written. The language necessarily is technical, but is made to offer as few difficulties for the general reader as possible.—T. E. B.

ELECTROCARDIOGRAPHIC INTERPRETATION

Katz and Johnson

ELEMENTS OF ELECTROCARDIOGRAPHIC INTERPRETATION. By L. N. Katz, M.D., Director, Cardiovascular Research, Michael Reese Hospital, Chicago, and V. Johnson, M.D., Professorial Lecturer in Physiology, The University of Chicago, Illinois.—University of Chicago Press. 1944. \$1.00.

The authors have been able in this forty-four page booklet to cover the subject of electrocardiography in a most lucid but brief manner. They do not attempt to dwell in detail on any certain phase. Instead they give the beginner a few of the essential fundamentals necessary to understand the various types of electrocardiograms.

The mechanics of the electrocardiogram are first discussed. This is followed by normal and abnormal rhythms, and finally the various forms of electrocardiograms produced by coronary disease. The feature making this presentation so attractive to the beginner is the unusual number of plates used to illustrate the abnormalities under discussion.

PHYSIOLOGICAL PSYCHOLOGY

Morgan

PHYSIOLOGICAL PSYCHOLOGY. By Clifford T. Morgan, Associate in Psychology, The Johns Hopkins University, Harvard University.—McGraw-Hill Book Company. Price \$4.00.

The author defines "physiological psychology" as the study of the physiological mechanisms of behavior. His book is essentially a textbook dealing with those parts of physiology that are pertinent to psychological problems. Some topics that enter into medical physiology naturally are more or less irrelevant here, and consequently they are either omitted or barely touched; while the sense organs, motor apparatus, nervous system and endocrines are handled with commendable thoroughness.

On the whole, the book is remarkably well organized and well written. The physiology of the central nervous system is presented with more clarity and coherence than this reviewer has found in any textbook written for medical students. Recent work is well covered and integrated with older material. The book should be useful and interesting not only to psychologists, but also to physiologists and to those concerned with neurology and psychiatry.—T. E. B.

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